

AMERICAN ARTISAN

OCTOBER 1958

Single copy price 60c

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• • The Magazine of

CENTRAL RESIDENTIAL AIR CONDITIONING

WARM AIR HEATING • SHEET METAL CONTRACTING



New hard sheet lead makes durable, economical
lining for limestone gutters see page 50

Can
you
think
of a
single
application
for
which
there
isn't a
precision-made



Field RC: 6" thru 9",
for oil and coal-fired furnaces
and boilers with 5" thru 10" flues.



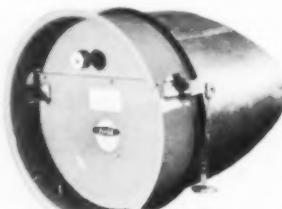
Field M: 6" thru 9",
for oil and coal-fired furnaces and
boilers with 5" thru 10" flues.



Field RAA-RNA: 6" and 6-7"
for space heaters, ranges and
furnaces.



Field SA-SNA: 6" and 6-7" for space
heaters, ranges and furnaces.



Field M+MG2:
10" thru 32", a triple-fuel control for oil,
gas, oil-gas and solid-fuel furnaces and
boilers.

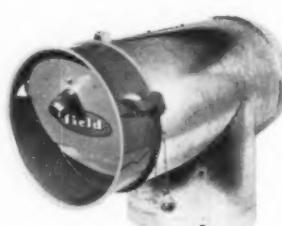


FIELD CONTROL DIVISION

H. D. Conkey & Company, Mendota, Ill.

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Conco Materials Handling Div. • Cranes, Hoists

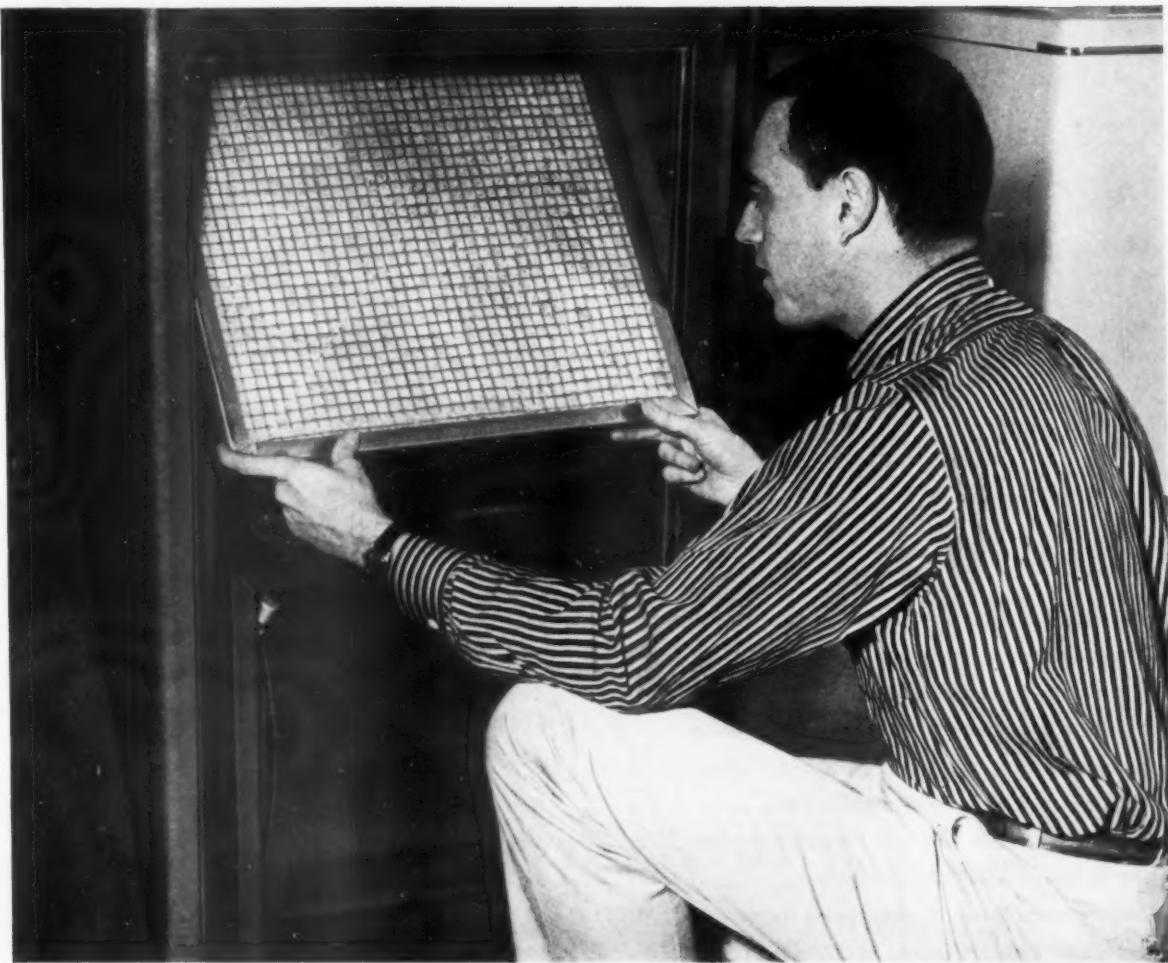
Represented in Canada by
Ontor Limited, 12 Leswyn Road Toronto 19, Ont., Canada



Field MG1: 7" and 8", double-acting for
lower input commercial gas-fired fur-
naces and boilers with 6" thru 9" flues.



Field 6" Incinerator Control:
For fuel-less and gas-fired in-
cinerators.



It pays—and pays—to put in PLIOTRON

FIRST PLACE, there's a healthy profit in selling these super-filters with their higher price tag. And they're so effective that you virtually eliminate the chance of profit-robbing "call-backs" for adjustment.

But the real payoff is the way most every PLIOTRON installation seems to start a chain reaction: Just as soon as a householder discovers the better, cleaner, more trouble-free job this super-filter does, he's bound to tell friends and neighbors. Presto—that original installation is paying off—again.



No trouble accounting for the growing popularity of PLIOTRON, either. These super-filters are depth-loaders—not just surface-loaders. So they're up to 400% more effective at trapping those fine hardest-to-catch dirt particles. And, when finally loaded, a quick water rinse restores full filter-power.

It's great performance like this that's rapidly making these super-filters the most wanted in America. More and more, it pays—and pays—to put in PLIOTRON. To cash in yourself, write Goodyear, P. O. Box 288, Akron, Ohio.

PLIOTRON AIR FILTER BY

GOOD YEAR



PLIOTRON—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

AMERICAN ARTISAN

... The Magazine of
CENTRAL RESIDENTIAL AIR CONDITIONING
WARM AIR HEATING • SHEET METAL CONTRACTING

OCTOBER 1958

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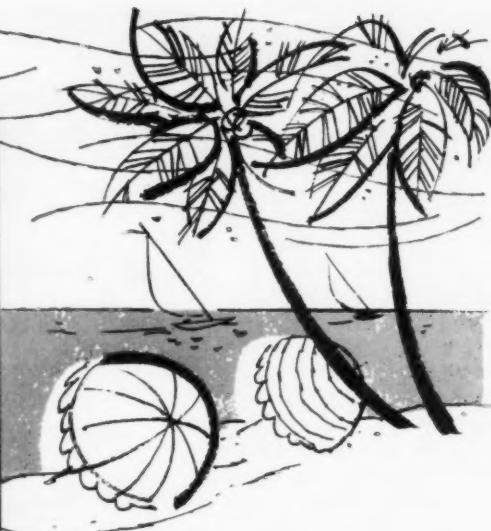
Merged with American Artisan are "Warm Air Heating" and "Furnaces and Sheet Metals"



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it's a
breeze...
winning over
prospects to

"constant-flow construction"
...new from Mueller Climatrol

In the Traditional — Type 105-1/202-1
Lowboy Winter Air Conditioner. Here's the
kind of heads-up heating design that makes
sense for prospects... money for you! Mueller
Climatrol introduces:

constant flow construction—ingenious new ta-
pered radiator evens out air flow, ups heat trans-
fer efficiency, reduces troublesome surface film.

dimpled radiator—gives "scrubbing action" to
flue gases, wrings out more heating comfort.

acoustical chamber—thermal and sound-proof

insulation fully surround blower and heat ex-

changer to swallow noise, hold heat.

gas and oil models—both quickly convertible.

attractive styling—"show piece" appearance,
rich gold and green baked enamel finish inside
and out.

Check with your Mueller Climatrol representa-
tive—he'll proudly explain the parade of sales-
worthy features built into this superb new unit.
Or write...

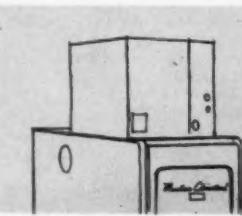
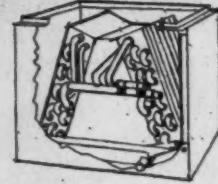
Mueller Climatrol®

2030 WEST OKLAHOMA AVENUE • MILWAUKEE 1, WISCONSIN
Western Zone: 1024 Westminster Avenue, Alhambra, California;
In Canada: 2490 Bloor Street West, Toronto 9, Ontario.
DIVISION OF WORTHINGTON CORP.

MORE PROFIT FROM THESE OPTIONS

COOLING COIL

Can be installed with
furnace or added later.

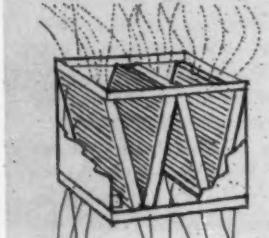


COIL CABINET

Sets up cooling sales.
No duct changes
needed — specially de-
signed for easy installa-
tion and service.

ELECTRONIC FILTER

Twenty times more
effective than throw-
away types —
means more
profit for dealers.



the editor's notebook

Thumbing Through This Month's Artisan

... we participate in a merchandising campaign in which a Wholesaler Lays Down a Standards Barrage with hard-sell newspaper advertising to acquaint the public with the *Standards for Rating Heating Systems*, and a thorough dealer-contractor advisory program which stresses the value of promoting the standards to convince the public that quality is the only logical criterion to use in buying comfort.

Gutters

... and we put a new grade of hard lead sheet to work on a dormitory roof where *Lead Gutters Run Water Off Duke's Back*—Duke, in this case being Duke University, and the hard lead being applied as lining for limestone gutters and flashing. We go over the installation procedures, noting sizes, application techniques and precautions required for the work, and we study the physical properties of the alloy which produce strength, workability and durability at a price which is competitive with other high quality materials.

Service

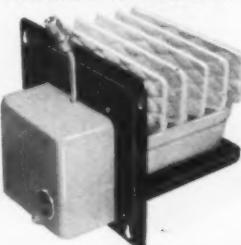
... and we visit a dealer-contractor whose *Service Efficiency Boosts Horizontal Furnace Sales* in Charlotte, N. C., where this type of installation is found in 90 percent of the new homes. We observe that this predominance is an advantage to the dealer-contractor, who has been exposed to most of the heating problems he can expect to encounter, and we note that he uses this know-how to build a reputation for excellent service work. We

3 GOOD REASONS why Heating Dealers everywhere like to Sell **Skuttle** PRODUCTS

1. The only complete line of humidifiers for warm air heating systems
2. More profitable sales due to greater product demand
3. Superior quality construction

The New **Skuttle** Model 711 Counter-Balanced Humidifier

Here's a sure bet to increase your sales and profits. The new Skuttle Model 711 is installed in vertical plenums of any warm air heating system easily and quickly. There's no complex mechanism, operates with a single orifice. The Model 711 is shipped completely assembled for do-it-yourself installation if desired. Complete instructions and template included in package. Write for further details on all models of Skuttle Humidifiers.



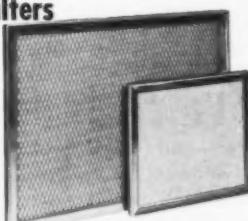
Skuttle Patented Vapoglas Plates



Millions of humidifier evaporating plates need replacing annually. Increase your profits by using Skuttle No. 489 Universal Vapoglas Plates, designed to fit all makes of humidifiers. Skuttle Vapoglas Plates have been satisfying customers for years. Get the best, install Skuttle Vapoglas Plates . . . copied but never equalled.

Skuttle-Aire Electrostatic, Permanent, Washable, Lifetime Air Filters

Your customers will save; you will profit with Skuttle-Aire permanent, washable air filters for furnaces, central air conditioning systems and room coolers. Replacement costs are completely eliminated. Easy to install, easy to remove for cleaning. Skuttle-Aire light weight filters are available in all sizes. *And they never need oiling.*



You can be sure your customers are getting maximum efficiency from any installation where Skuttle-Aire Electrostatic, Permanent, Washable, Lifetime Air Filters are used.

Skuttle

IN CANADA: WAIT-SKUTTLE CO., OAKVILLE, ONT.

MANUFACTURING CO.
MILFORD, MICHIGAN

ELECTRIC RADIANT HEATERS

HUMIDIFIERS

PERMANENT FILTERS



the editor's notebook

(Continued)

follow the step-by-step procedure of overhauling heat exchangers and installing replacement systems which are sold as the result of service work, and we study the precautions taken by the engineers and installers to insure that the new or repaired system operates as efficiently as possible.

Charging

... and we review some recommended procedures, conditions and characteristics involved in air conditioning system maintenance in order to make sure servicemen know *How to Charge a Refrigeration System* properly. We follow a case history of a bungled job to illustrate some of the mistakes which can be made, then we review refrigerant properties and peculiarities. This discussion leads us into correct procedures for purging and charging, which vary with the circumstances that contribute to the need for charging. Finally, we review the most reliable methods for testing and measuring the refrigerant charge to assure continued efficiency.

Contest to Develop New Sales Techniques

NOT LONG AGO, I received a letter from A. N. Sears, president of National Sales Executives Inc., a marketing management association with over 30,000 members. Mr. Sears wrote that the association was going to conduct a contest that would help "Bust the Recession." The recession appears to be pretty well on the way out at this time; however, the idea of the contest has considerable merit and the points expressed by contestants will prove helpful in developing future sales.

Contractors: If you now own a **LOCKFORMER**, read this...



AUTO-GUIDE FLANGING ATTACHMENT is installed in minutes, turns out perfect flanges automatically on straight or curved pieces, doesn't interfere with either built-in (Pittsburgh) or auxiliary roll operation. Lets you set up for three jobs without changeover.



SLITTING ATTACHMENT makes your Lockformer a Power Slitter that will handle any slitting job on sheets as wide as 48 inches—fast, accurate slitter that costs less than an 8 foot shear.

LOCKFORMER AUXILIARY ROLLS form drive cleats, flanges, double seam and standing seam locks—auxiliary Pittsburgh rolls make your heavy gauge Lockformer a heavy gauge Lockformer into both a heavy and a light gauge machine.

CLEATFORMER AUXILIARY ROLLS makes flanges, standing seams and $\frac{1}{2}$ " connections as well as drive cleats (in addition to built-in "S" cleat rolls).

NO OBSOLESCENCE!
IT DOESN'T MATTER
HOW OLD YOUR
LOCKFORMER IS!
All the equipment listed
here will fit it.

WRITE FOR THE CURRENT **LOCKFORMER** CATALOG. GET ALL THE FACTS ON HOW TO GET THE MOST OUT OF YOUR PRESENT **LOCKFORMER**. (Right now is a good time to write.)



STANDING "S" CLEAT AUXILIARY ROLLS make full $\frac{1}{2}$ " right angles, standing seams and Government Locks (Cup Clips).



Auto-Guide Flanger on Power Base (for bench use)



Slitting Attachment on Power Base with Floor Stand.

POWER BASES (with or without floor stands) for flanging and slitting attachments make each into a separate piece of power equipment—practical for shops which have only one Lockformer, yet want both power flanging and power slitting equipment.

THE **LOCKFORMER COMPANY**

4615 W. ROOSEVELT ROAD, CHICAGO 50, ILLINOIS

In Canada:

Brown Boggs Foundry & Machine Co. Ltd., Hamilton, Ont.

the editor's notebook

(Continued)

New techniques in sales management, advertising, sales promotions, sales motivation, visual aids, and personal selling practices will come out of this contest. These will be screened in the New York office by the judges and the best will be published in a manual entitled "How To Increase Sales in a Buyer's Market." When this book is available, I will bring it to your attention as I feel that many of the ideas proposed will be easily adaptable to our industry and will provide a basis for promotional activity that will result in an increased number of sales for dealer-contractors.



**Symbols of
Wantedness**

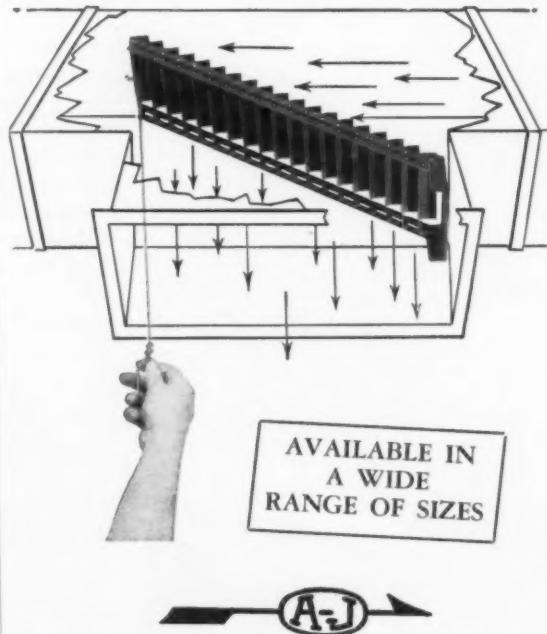
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Execs Put High Value On Association Meetings

SOON the National Warm Air Heating and Air Conditioning Association and the National Heating and Air Conditioning Wholesalers will be holding their conventions in Cleveland. Altogether the registration for these two conventions, which take place during the week of December 1st, will total approximately 1,100. The sessions at these meetings will

NOW... Divert Air

Where You Want It!



A-J

AIR "EXTRACTOR"

This new A-J Air Extractor gives you maximum control of any forced air system. It's not a "damper type" control to meter *available* air flow through a grille, but a "scoop" that diverts air from the main duct to branch ducts or grilles and *increases* output over normal flow where needed.

The curved steel blades of the A-J Extractor are adjustable and act in unison to provide a controlled and uniform flow of air into branch ducts. A single key rod provides fast and easy adjustment through the face of a grille or register, and eliminates need for removal. The extractor is sturdily constructed, and fastened in the duct with two screws. Velocity of the air will not alter setting. Write for full information and prices.

FREE CATALOG

listing, describing and pricing 1,000 types
and sizes of grilles, registers, etc.

A-J MANUFACTURING CO.

Dept. A-10

3601 E. 18th St.

Kansas City 27, Mo.

the editor's notebook

(Continued)

be aimed at stimulating the warm air heating and air conditioning industry to sell more heating and air conditioning systems and to make higher quality installations.

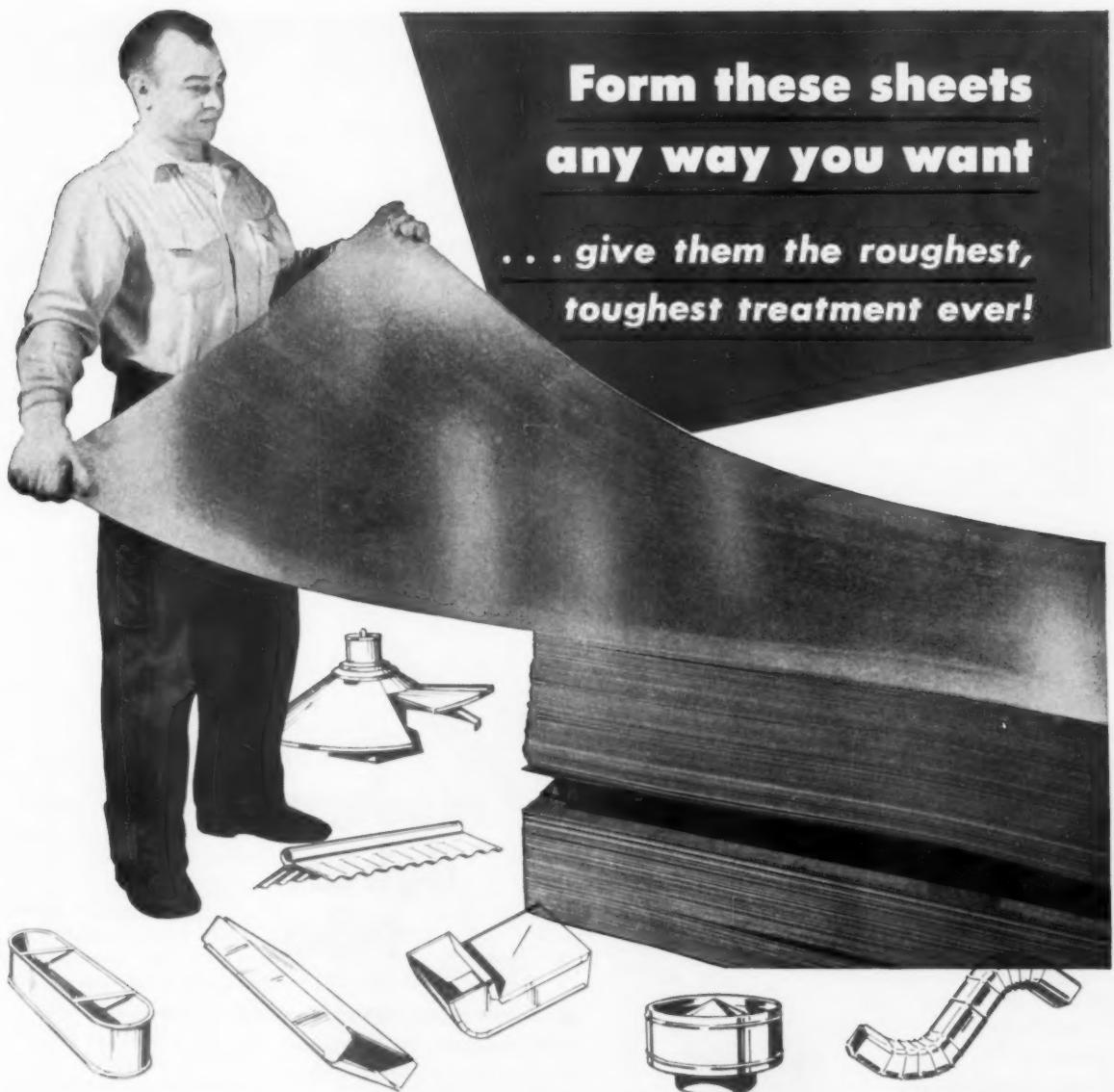
The value of attending such meetings as these is emphasized by the importance attached to industry meetings by progressive business executives. I recently received a letter from American Management Association indicating that more than 60,000 business executives are expected to attend meetings held by that association during the next eight months.

It stands to reason that thousands of executives would not spend their time attending meetings if they did not come up with ideas that make it possible for them to operate their businesses more effectively.

It's my belief that dealer-contractors and wholesalers who have been hesitant about attending national, state and local meetings will profit by planning now to attend all of the meetings that take place within their areas during the next convention season as well as national meetings scheduled for this winter.

Compressor Assemblies Been Overheating?

NOW THAT the summer air conditioning season is over, those of you who experienced trouble with overheated hermetically sealed compressor assemblies will be pleased to know that a device has recently been developed that will help indicate overheating of hermetically sealed motors. This new protective element has been developed by the General Electric Air Conditioning Department and has been tested for four years. Called a temperature sensing system, it offers more positive protection against



**Form these sheets
any way you want
... give them the roughest,
toughest treatment ever!**

**GREAT WESTERN GALVANIZED SHEETS
take every crimp, every lock seam,
every bend, fold and roll without flak-
ing, chipping, cracking or peeling!**

Try these sheets on your most difficult jobs. You'll be amazed at how easily they form, how sparkling bright, good looking and strong the finished jobs come through.

Galvanized by the most modern continuous process these quality sheets have the tightest zinc coating ever . . . they will not flake, chip, crack or peel.

Call GREAT WESTERN STEEL on all your requirements . . . it's just like having a steel warehouse in your backyard . . . with immediate deliveries that fit right into your production schedules.

**CHICAGO Call HEmlock 4-5800
MILWAUKEE Call Hilltop 4-3092**

General Office and Plant:
2300 W. 58th St., CHICAGO 36, HE 4-5800
MILWAUKEE Plant: 2475 W. Hampton Ave., Hilltop 4-3092
REPRESENTATIVES IN PRINCIPAL MIDWESTERN CITIES



**GREAT WESTERN
STEEL COMPANY**

ESTABLISHED 1918

the editor's

notebook

(Continued)

excessive motor winding temperatures within hermetically sealed units than is normally provided for central summer air conditioning units.

The findings of the General Electric Air Conditioning Department are being made available to all manufacturers of compressor motor assemblies.

The new protective system employs a thermostat buried in the end-turns of the motor windings. When a predetermined temperature is reached, the unit automatically shuts off. The new device protects the motor from overheating which often leads to motor burnout. A motor burnout results in damaged and contaminated refrigerant systems because when insulation of the motor breaks down, its burned residue is circulated within the entire system, causing reduced heat flow in refrigerant coils and tubing, and damage at the expansion valves, etc.

Underwriters Laboratory tests are presently being conducted on the new temperature sensing device and as soon as it is approved it will be made available.

Buying Habits Survey Helps Plan Promotion

DEALER-CONTRACTORS and wholesalers who undertake investigations to ascertain characteristics of the buying public usually profit by their work. In areas where no surveys are conducted, it is necessary to rely upon national trends to indicate consumer purchasing habits.

In the first quarter of 1958, according to the Department of Commerce, the annual rate of consumer expenditures for durable goods declined sharply to \$36.3 billion (the lowest level since late 1954). The proportion of consumer disposable in-

the editor's

notebook

(Continued)

come allocated to purchases of such goods—at slightly less than 12 percent—was close to the lows of the last decade.

It was found that the purchase of durable goods was more common among upper income groups than among lower income groups. The proportion of those making major expenditures ranged from two in ten in the lowest income bracket to six in ten in the highest income bracket. The following table lists various income groups and shows the percentage that each group intends to spend for major household appliances. A dealer-contractor can profit by directing his sales appeals and sales promotion programs toward the specific groups outlined. If he is in a position to anticipate the amount of money available, he will be better able to sell his services and products against those offered by other industries.

percent planning to make major purchases

Income Group this year

\$5,000. to \$7,499.	35%
\$7,500. to \$9,999.	37%
\$10,000. and over	41%

Results of the 1958 Survey of Consumer Finances are based on 3117 interviews during January and February in 2765 homes. These homes are located in 12 large metropolitan areas and in 54 additional sampling areas chosen to represent a cross section of the population living in private households in the continental United States. Transients, residents of institutions, and persons living on military reservations were not included in this survey.

Pay Over \$13,000,000 For Employee Ideas

ARE YOU turning employee ideas into profit for your

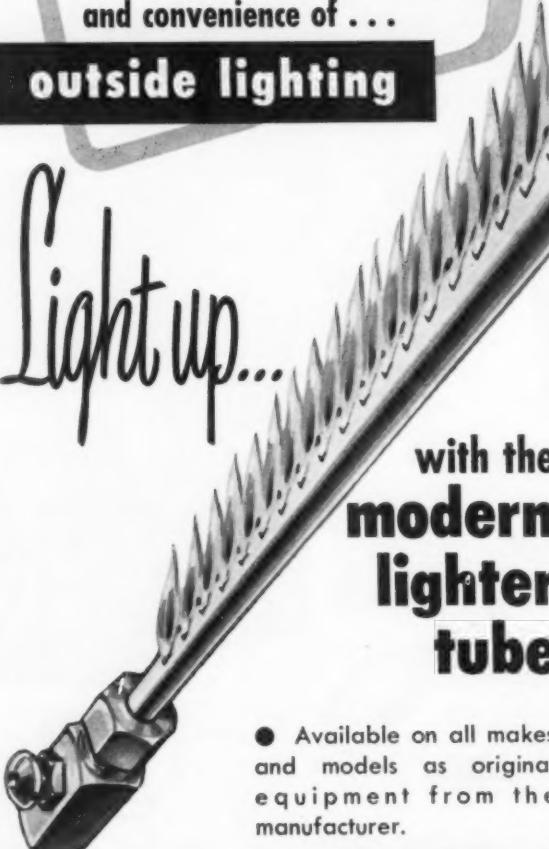
Speaking of modernization...

to be really modern a gas heating unit must have the safety and convenience of ...

outside lighting

Light up...

with the
modern
lighter
tube



● Available on all makes and models as original equipment from the manufacturer.

Your customer will appreciate the push-button ease of pilot lighting and the freedom from sometimes hazardous lighting practices.

(U.S. Pat. No. 2728384, Can. Pat. No. 676802)



Write for literature.

MODERN LIGHTERS

INCORPORATED
NORTHVILLE, MICHIGAN
FORMERLY
MODERN MATERIALS COMPANY

Revolutionary!

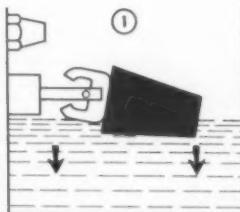
KEENEY

CLIMATIZER

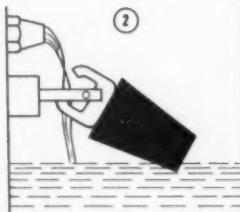
ELECTRIC HUMIDIFIER



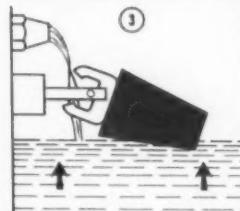
water level controlled by the float switch jet pilots rely on



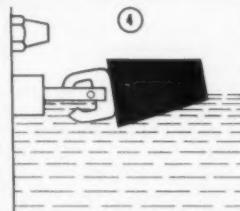
Switch, completely enclosed in float, rides lowering water with imbedded rocker magnet in ready position.



At low water, magnet trips switch. Normally closed, solenoid valve opens, instantly lets water in.



Switch rides rising water. Float made of nitrogen-exploDED rubber, has cellular construction, cannot sink.



At desired water level, magnet again trips switch. Solenoid valve closes, instantly shuts water off.

POSITIVE HUMIDIFICATION!

Exclusive, built-in heating element produces a vapor which rises directly into air stream. *No evaporation plates!*

MAGIC COVER!

Prevents crud accumulation. Regardless of water conditions, keeps microscopic particles in *colloidal suspension* until exhausted in the vapor escaping through the holes.

SMALL, COMPACT, EASY TO INSTALL

Model 250—wired to operate when blower is ON.

Model 251—wired with electric plug for continuous operation.

NOTHING TO JAM, CLOG OR FAIL

WRITE FOR
COMPLETE
INFORMATION!



THE KEENEY MANUFACTURING CO.
NEWINGTON, CONNECTICUT

Follow the leader — KEENEY

**the editor's
notebook**

(Continued)

company? Many companies do because they recognize the contact that workers have with recurrent problems often qualifies them to provide the best answers. The "suggestion box" may appear to be an old idea but employee suggestion programs are gaining nationwide acceptance. A survey just completed by the National Association of Suggestion Systems, Chicago, among its 1163 members representing business and government, shows that last year, 6,628-386 employees submitted 1,692,704 suggestions through formalized suggestion programs. Of this number, 25 per cent or 434,375 worker ideas were adopted and used. For these, employees were paid \$13,956,841 in rewards.

If you're interested in trying this idea in your business, I suggest you contact the National Association of Suggestion Systems. NASS is a non-profit organization of member companies operating suggestion plans and was founded 17 years ago. More recently, NASS published a booklet "The Suggestion Plan", an authoritative study of how to conduct an employee suggestion program. It is available at no charge and may be obtained by writing the association's headquarters at 25 East Jackson Blvd., Chicago 4.

There may be gold among your employees just awaiting your prospecting. Good luck.

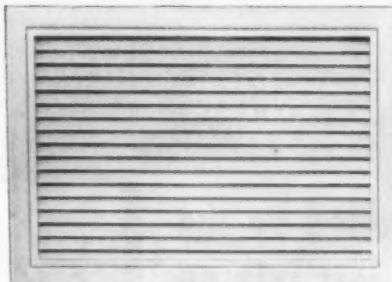
**Rapid Growth in
Demand for Heat Pumps**

EVIDENCE that the heat pump is increasing in popularity among home owners and builders is the fact that the Florida Power and Light Company reports a 100 percent gain in residential heat pump operations during the past year. Out west, the Salt

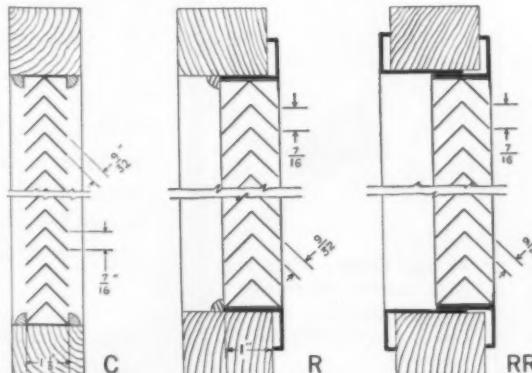
You can't see through

INDEPENDENT

NO-VISION GRILLES for Doors, Walls and Partitions



No-Vision Grille No. 1312R



Where ventilation without vision is desired—in doors, walls and partitions—Independent No-Vision Grilles meet every requirement. It's impossible to see through an Independent No-Vision Grille from any viewpoint.

Independent No-Vision Grilles are made in three styles—Style C with grille core only, installed with molding as shown above; Style R with overlapping rim on all four sides of one surface of the grille; and style RR with a rim which is adjustable for door thicknesses of 1 1/4" to 2 1/4".

Independent No-Vision Grilles are made in 46 standard sizes for openings from 8" x 6" to 30" x 24". Additional sizes can be furnished on special order.

Send for Catalog

Write for Catalog No. 58—gives schedules of sizes, details and prices of registers and grilles for every purpose.

Always Leading—Always Progressing



**THE INDEPENDENT
REGISTER CO.**

3747 E. 93rd STREET • CLEVELAND, OHIO

**the editor's
notebook**

(Continued)

River Power District (Phoenix, Ariz.) forecast 740 heat pumps will go into residences before 1958 ends.

These figures were sent me by the Carrier Corp. and they please me very much. I'm glad the public recognizes the value of air distribution systems over other methods of attempted heating or cooling.

Wholesaler, Manufacturer Discuss Five "P's"

ORVILLE GARRETT, of the Loman Supply Co., a wholesaler in Greensboro, N. C., recently wrote the National Heating and Airconditioning Wholesalers association this letter. He said, "When a manufacturer approaches me nowadays I immediately discuss the five 'P's' with him, in this order:

- 1) Policy—What is the manufacturer's distribution policy?
- 2) Profit—Will his policy permit me to make a profit?
- 3) Product—if he gets this far, then we can talk product and features of the product.
- 4) Prices—Price is secondary to policy, profit and product, but must be discussed to round out the essential elements in wholesaling.
- 5) People—What kind of people will I be dealing with?"

I think this is an excellent procedure for a wholesaler to use when talking with a manufacturer's representative. I think these same five P's can very well be used by dealer-contractors in discussions with manufacturers' representatives and with wholesalers' representatives.

Clyde M. Barnes

EDITOR



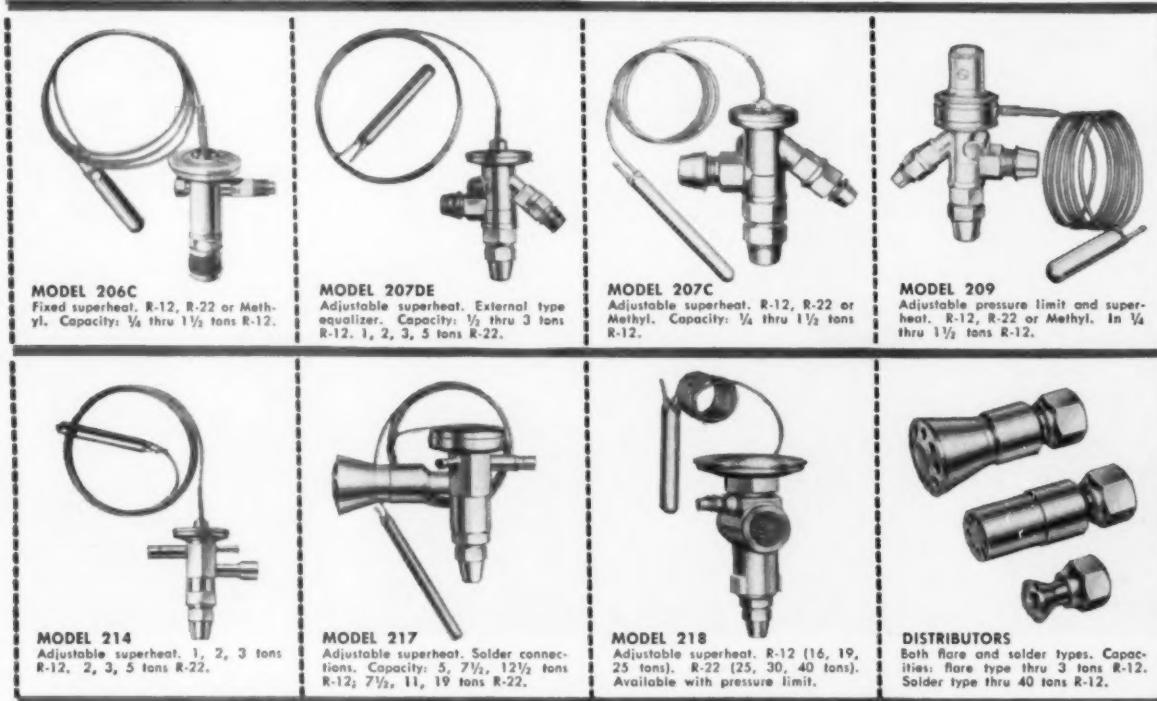
one source
for all thermostatic
expansion valve needs

Single out A-P for triple duty

A-P's complete capacity line of thermostatic expansion valves (1/4 to 25 tons, R-12) is geared to perform on:

1. **Most commercial applications** where pressure limit is not required. Standard liquid charged TXVs may be applied universally. Special liquid charges are available for critical applications.
2. **Air conditioning applications** requiring pressure limit. A-P gas charged (type 209) TXVs are ideal for the job.
3. **Low temperature applications** where pressure limit is required. Use A-P liquid charged valves with adjustable pressure limit.

These valves complement industry's most complete line of refrigeration and air conditioning controls. Take advantage of this single source availability — your assurance of dependable performance.



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Manufacturers of A-P CONTROLS

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Controls That Make Modern Living Possible

Write for Book E220 — gives complete data on A-P thermostatic expansion valves.





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You can make your job easier with Century Electric's complete line of fractional-horsepower motors. Here's how:

Easy ordering—You save time because you get answers to all motor problems from one source. This means you don't have to shop around for the motor you need. You name it—capacitor, jet pump,

unit heater, oil burner, brake, gear—any one you want, and in all types of enclosures too.

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Century's complete fractional line

Application know-how—You want to be sure you have the *right* motor for the job. And if you need expert help, you can get it from your nearest Century Electric sales engineer. He knows motors inside and out because he sells, applies and thinks motors day after day.

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from Century Electric. You get a quality product, fast answers and engineering application know-how on motors up to 400 hp—all from one source.

CENTURY ELECTRIC COMPANY

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Century
58-19



LOOKING AHEAD

...AS WE COMPLETE OUR 52nd SUCCESSFUL

* * * * *

● Opportunity in the heating and air conditioning field was never greater than in the period just ahead. All indications point to accelerated building of new homes requiring new heating and cooling installations. The millions of homes built in the postwar boom are coming of age for replacement furnaces.

Waterbury is ready with plans for new products and creative selling ideas to help its dealers make sales and profits. Waterbury's management group has men seasoned in industry experience, and young and aggressive men to carry forward the Waterbury traditions.



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THOMAS J.
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Vice President,
Sales Manager



DONALD
MATHISON,
Plant Manager



JAMES
WILSON,
Chief Engineer

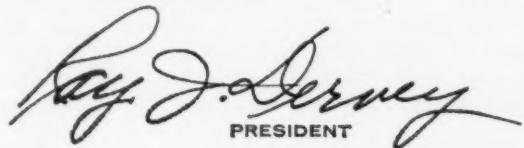
WATERBURY MANAGEMENT TEAM

to a Bright Future

YEAR IN THE HEATING AND AIR CONDITIONING INDUSTRY

Waterbury re-affirms these 3 basic policies

- 1** Waterbury will continue to manufacture warm air heating and air conditioning equipment that meets *highest quality* standards.
- 2** All Waterbury products will be distributed *only* through franchised distributors and their dealers.
- 3** A complete sales promotion and service training program will back up our distributor-dealer organization in the field.



Fay J. Denney
PRESIDENT

The Waterman-Waterbury Company
MINNEAPOLIS, MINNESOTA

Tecumseh

Engineering VISION

37 MILLION COMPRESSORS IN THE FIELD

PANCAKES

Both the popular Pancake and the more popular model
are used interchangeably. Since the Pancake is a
true hermetic unit, it can be used in any application
that calls for a hermetic compressor.

INTERNAL FRIG. UNITS

These are the most popular type of
hermetic compressor. They are
used in a wide variety of applications
such as refrigeration, air conditioning
and heating.

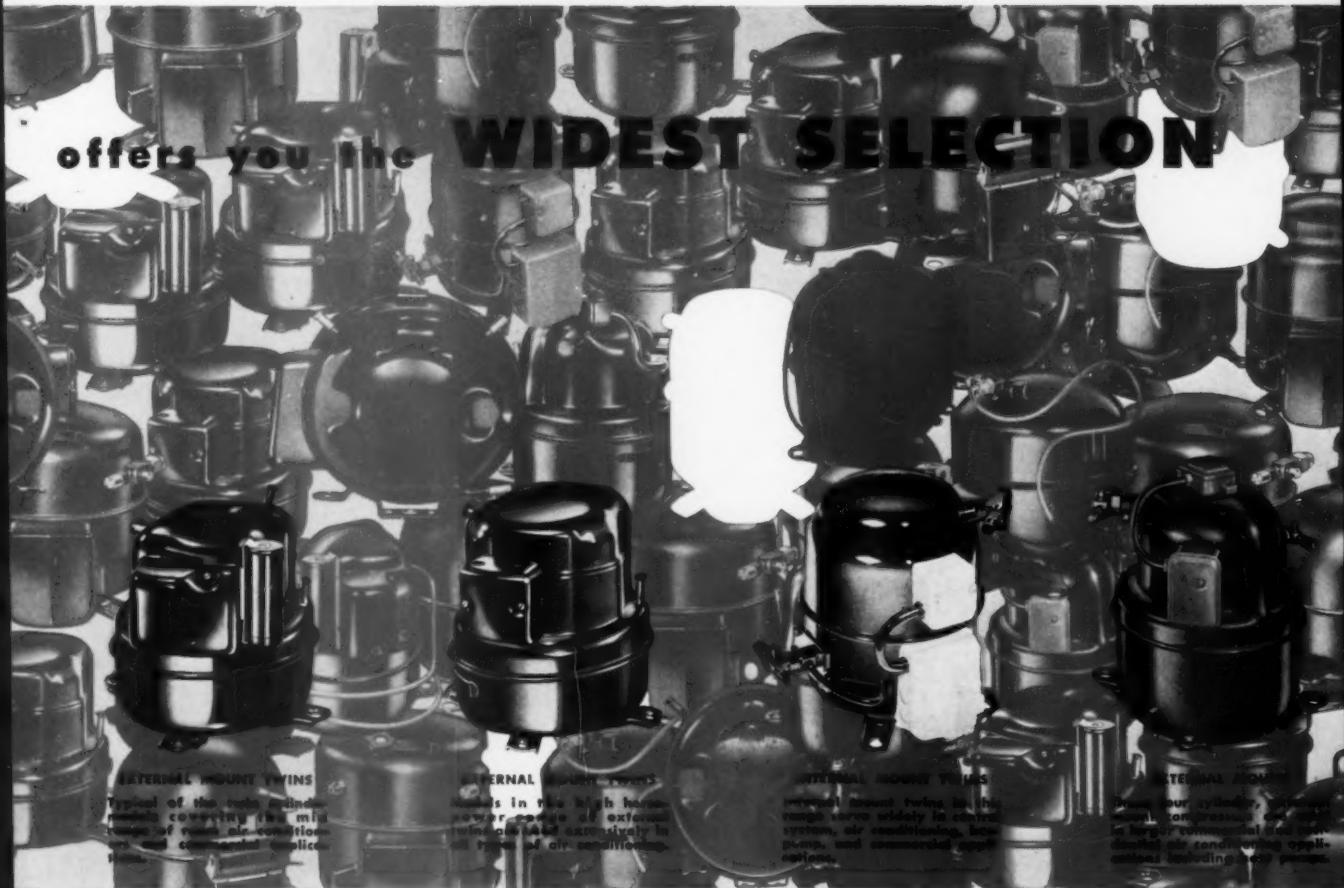
SINGLES

The single compressor is a
true hermetic unit. It is
used in a wide variety of
applications.

OF HERMETIC COMPRESSORS . . .

The reason for these many compressor models is obvious. We feel that to serve the industry, we must provide the equipment they want, when they want it. The best way to do this is to provide several choices in the same horsepower size . . . then our customers can more exactly balance their particular systems with a standard, high production compressor. Over 2000 different Bills of Material incorporating minor variations in these basic models are available. These models incorporate all of the design and operational features required to do a better job for you. These include: various physical sizes — numerous tube and valve arrangements — high and low torque — voltage variations — refrigerant 12 and 22 — air, water, and air/water cooled adaptabilities. Whatever your need, you'll find that Tecumseh has the *right* compressor to fill it.

The variety of applications we serve has dictated a continual effort to keep ahead of the industry's requirements. This effort has resulted in a constantly improved product, generally reduced prices, and increased production efficiency. Proof of Tecumseh's ability to keep pace with industry developments is the fact that there has been a Tecumseh compressor ahead of every industry demand, in any quantity required. Call in Tecumseh today and make your selection from the most complete, up-to-date compressor line on the market.



offers you the **WIDEST SELECTION**

INTERNAL MOUNT TWINS

Typical of the two cylinder models covering the mid-range of room air conditioners and commercial applications.

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Models in the high horsepower range of external twins are used extensively in all types of air conditioning.

INTERNAL MOUNT TWINS

External mount twins in this range serve widely in central system, air conditioning, low pressure, and commercial applications.

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Our catalog lists a complete line of compressors designed for large commercial and heavy industrial air conditioning applications including heat pumps.

112 BASIC MODELS, $1/12$ THROUGH 5 HP

PANCAKE COMPRESSORS

16 models between $1/12$ and 1 horsepower — high and low temperature — with capacities ranging from 320 to 12000 BTU.

TINY T-LINE COMPRESSORS

7 models between $1/6$ and $1/3$ horsepower — high and low temperature — with capacities ranging from 525 to 3175 BTU.

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26 models between $1/8$ and 1 horsepower — high and

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35 models between $1/2$ and 2 horsepower — high, medium, and low temperature — with capacities ranging from 2140 to 24,000 BTU.

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20 models between 1 and 3 horsepower — high, medium, and low temperature — with capacities ranging from 4650 to 37,500 BTU.

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8 models between 3 and 5 horsepower — high temperature — with capacities ranging from 37,500 to 66,500 BTU.

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WHAT'S HAPPENING . . . including Washington Letter

Steel Orders Lead Way in Business Recovery

NEW YORK CITY — The past summer has been a heartening period for business, the First National City Bank of New York notes in a recent report on business and economic conditions. For instance, recovery in steel operations showed that the late spring rise was something more than anticipated price advances. New home building moved ahead and the work week in manufacturing increased. Personal income advanced to a new record high. Gross national product moved up to an annual rate of \$429 billion in the second quarter, erasing about one-sixth of its decline. In just three months — May, June and July — industrial production (seasonally adjusted) rose 6 percent.

Increases in new orders received by manufacturers have been fairly widespread in recent months, but the most significant gain — accounting for over half the total increase between the first and second quarters — was in the primary metals group, notably steel and aluminum.

Selling Quality to be Theme of NWAHACA Convention



CLEVELAND, OHIO will be the scene of the National Warm Air Heating and Air Conditioning Association's 45th annual convention

CLEVELAND — The 45th annual convention of the National Warm Air Heating and Air Conditioning Association, to be held in Cleveland Dec. 4-5, is expected to outdraw all previous conventions, according to George Boeddener, the group's managing director. Mr. Boeddener stated that interest in NWAHACA's activities is at an all time high and that requests for information on the "Sil-

ver Shield" program are being received in growing numbers from dealer-contractors, home owners, prospective home buyers, manufacturers and public officials throughout the country.

Based on the theme "Every sale a new challenge — make the most of it," the meeting will stress how a warm air heating dealer-contractor can make a sale not because he is the lowest bidder but because he has a quality product the home owner or home buyer wants and needs.

All sessions of the convention will be held at the Statler Hilton Hotel in Cleveland. Actual convention sessions will be preceded by two days of committee meetings.

A unique approach in presenting convention information will be used. Specific ways to increase service, sales and profits that can be adapted to a dealer-contractor's individual operation will be dramatized in a series of short sketches. Some of the subjects to be covered are:

- 1) The impact of Research Residence No. 4 on installation standards, building codes and comfort.
- 2) The association's national promotional plan to make home buyers and home owners aware of the importance of installing heating systems

(Continued on page 27)

Stromberg Elected President Washington Building Congress

WASHINGTON, D. C. — Paul Stromberg, Stromberg Sheet Metal Works, Inc., a past president of the Sheet Metal and Air Conditioning Contractors' National Association, has been elected president of the Washington Building Congress. He will serve a one-year term which began October 13. Installation ceremonies took place at the Building Congress's recent annual meeting.

The Washington Building Congress is an association of professional and business men dedicated to improving business conditions in the construction industry serving the Washington, D. C. area. One of the

projects now underway is an all-out effort to reduce bid shopping and other practices that result in price cutting and a consequent skimping on materials and workmanship.

The first step in solving this problem was undertaken at the annual meeting where representatives of four segments of the building industry — architects and engineers, general contractors, subcontractors and material suppliers — presented vital information that will aid in overcoming some of the situations currently creating difficulty for the industry. This information was presented in four off-the-record panel discussions.



High-Strength, Precision-Made Gutters. Here's a system that stands up, even lets you lean a ladder against it without damage. Precision manufacturing to $\frac{1}{16}$ in. tolerance produces snug-fitting joints with less labor. Availability in 15-ft lengths speeds installation by reducing the number of joints. Standard 5-in. size in both OG and half-round types, plain or embossed.

ALCOA ALUMINUM GUTTERS:

**FASTEST INSTALLATION,
FINEST PROTECTION AT
COMPETITIVE COST!**

Extra-heavy construction with .032 gage metal—fully 20 per cent thicker than any other ready-made metal system—makes this new Alcoa product the strongest gutter and downspout ever offered. Alclad coating provides a surface that defies corrosion and never needs painting. Alcoa's exclusive riveting and sealing assure leakproof joints without soldering to make installation fast, easy and inexpensive. Check the following Alcoa features that let you give your customers tailor-made quality and permanent protection at the same price they'd pay for ordinary systems.



Two Special Hanging Systems To Suit Any Job. Fascia apron and bar hangers for replacement jobs, roof apron and strap hangers for new construction. Both hangers allow the gutter to expand and contract with seasonal temperature changes. Because Alcoa® Gutters are "free floating," there's no strain on joints. Extra height at back protects the roof against backed-up water.



Modern, Simplified Fittings For Faster Installation. New Alcoa design eliminates one-third of the fittings normally used. Miter sections are simpler, easier to use. No need to haul along old-style corner and downspout sections, slip-joint connectors, strap hangers and gutter spikes. No fussy hot-soldering, either. You get a clean-lined, attractive job with less work.



20% THICKER METAL ASSURES LONGER LIFE

JOB-TESTED JOINING METHOD

Alcoa Gutter Seal, product of a nationally famous scientific laboratory. You get leak-proof joints by simply applying the sealant to overlapping surfaces, fitting and riveting.



"Pop" Riveter is simple to load, simple to use; it works like a pair of pliers. Loaded riveter inserts into hole, pressure is applied with one hand to get a tightly riveted joint.

ASK YOUR DISTRIBUTOR OR
LOCAL METAL SUPPLY HOUSE
FOR NEW ALCOA ALUMINUM
GUTTERS AND DOWNSPOUTS.
MAIL THIS COUPON TODAY
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"**ALCOA THEATRE**"
Exciting Adventure
Alternate Monday Evenings



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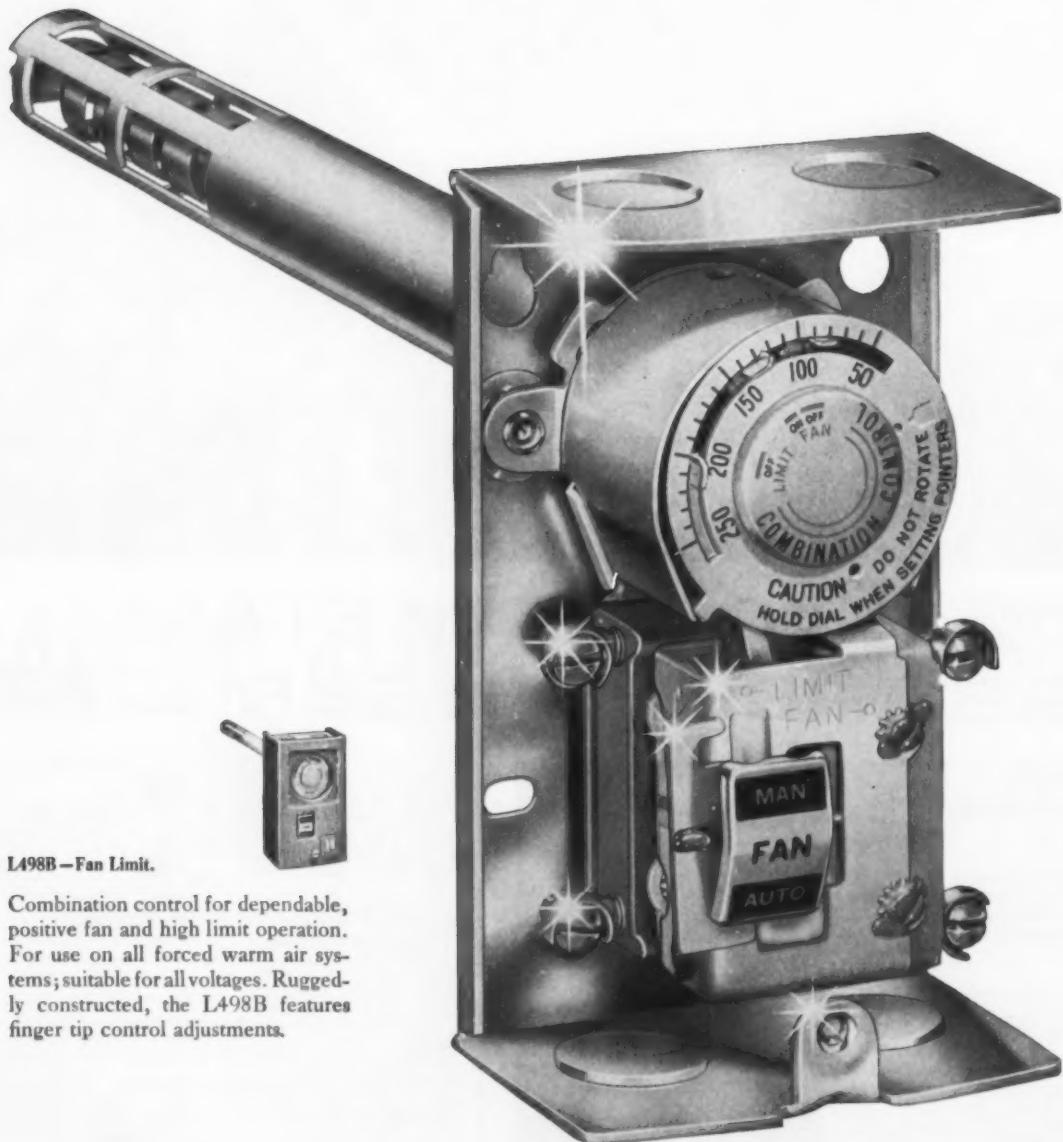
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L498B—Fan Limit.

Combination control for dependable, positive fan and high limit operation. For use on all forced warm air systems; suitable for all voltages. Ruggedly constructed, the L498B features finger tip control adjustments.

UP

Help when and where you need it on tough control problems—that's Honeywell. For with 112 sales-service offices throughout the country, there's a Honeywell man as near as your phone, ready with fast help that makes sales-sense from your point of view. What's more, Honeywell's systems-and-service way of doing business backs you up 100 percent, at no cost to you. You get reliability; easier installations; simplified inventories; educational programs for your staff—and above all, far fewer costly call-backs. Added up, these benefits mean more profit from every job when your units have all-Honeywell controls.

Ask your Honeywell man to prove it.

For information on Honeywell's complete line of control systems for heating and cooling, call your local Honeywell office. Or write Minneapolis-Honeywell, Dept. AA-10-23, Minneapolis 8, Minnesota. Honeywell sales and service coverage is world-wide.

Honeywell



First in Control



South's newest landmark protected by ten tons of Chase® copper!

**Wachovia Bank & Trust Co.
building in Charlotte, N.C.
uses sheet and strip copper
flashing in construction**

First building in the United States to use prismatic, pre-cast concrete panels. First tower-type structure in the South. Largest office building in Charlotte. These are some of the records set by the striking new office building of the Wachovia Bank & Trust Company.

More than 25,000 lbs. of copper flashing by Chase protect the building against weather. Ten tons plus of sheet and strip copper and lead-coated copper were used in its construction.

Chase is ready to help *you* meet the needs of *your* construction projects—large or small, from residence to major office building. Let your nearest Chase District Office or Warehouse show you the many ways that low-cost, long-lasting copper can serve better, protect longer, add beauty to buildings. Or write Chase, Waterbury 20, Connecticut.

Architects:
Harrison & Abramovitz
New York City
A. G. Odell Jr. & Associates
Charlotte, N.C.

Sheet Metal Contractor:
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Wholesalers:
Metal Service Corporation
Hojoco Corporation



Five-million-dollar new home of Wachovia Bank & Trust Co. in Charlotte, N.C.—called one of America's most modern buildings.

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WHAT'S HAPPENING... including Washington Letter

(Continued from page 21)

Convention Speakers To Urge Quality Sales

(Continued from page 21)

according to recommendations contained in NWAHACA manuals.

3) Use of the manuals in making a sale. Ways to sell jobs on a quality rather than a price basis.

4) The "Silver Shield" program and its successful trial in Kalamazoo, Mich. How dealers who sell guaranteed systems help the industry as a whole.

In addition to industry people who will discuss sales techniques, merchandising activities and technical advances, there will be speakers from the American Institute of Management, the Better Business Bureau, and the Adequate Wiring Bureau.

Special activities for women attending the meeting are being planned, according to the women's committee.

Women Describe Improvements Wanted in Homes

WASHINGTON, D.C. — The air conditioning industry had a prominent part in the Women's Conference on Housing held in Washington Oct. 14-16, according to George S. Jones Jr., managing director of the Air-Conditioning and Refrigeration Institute. Representatives of both ARI and Project SMAC (Sell More Air Conditioning) participated in the meeting. Also represented were the Structural Clay Products Institute, the Copper and Brass Research Association and other building trades associations.

About 100 women from all parts of the country were in attendance at the conference, which was sponsored jointly by the National Association of Home Builders and the United Industry Committee for Housing. Selection of the women was based on their answers to questionnaires in which they were asked to tell what features

Study Multi-Level Heating At Research Residence 4



EXTENSIVE INSTRUMENTATION will provide data on temperature and humidity at 475 points, under varying weather conditions and under normal family living conditions

CHAMPAIGN, ILL. — Tests are now underway to determine the best methods of heating multi-level houses with forced warm air systems. The investigations, which will continue throughout the 1958-59 heating season, are being made at Research Residence No. 4 at the University of Illinois, Champaign. The program, sponsored by the National Warm Air Heating and Air Conditioning Association, is being conducted under the direction of the group's Research

they wanted most in a future home or explain how they would like to improve their present homes. The information obtained from the questionnaires will be made available to the air conditioning industry and other members of the United Industry Committee. Transcripts of the round table discussions at the conference are being made, and this information will also be available to industry associations for guidance in promotional and developmental programs.

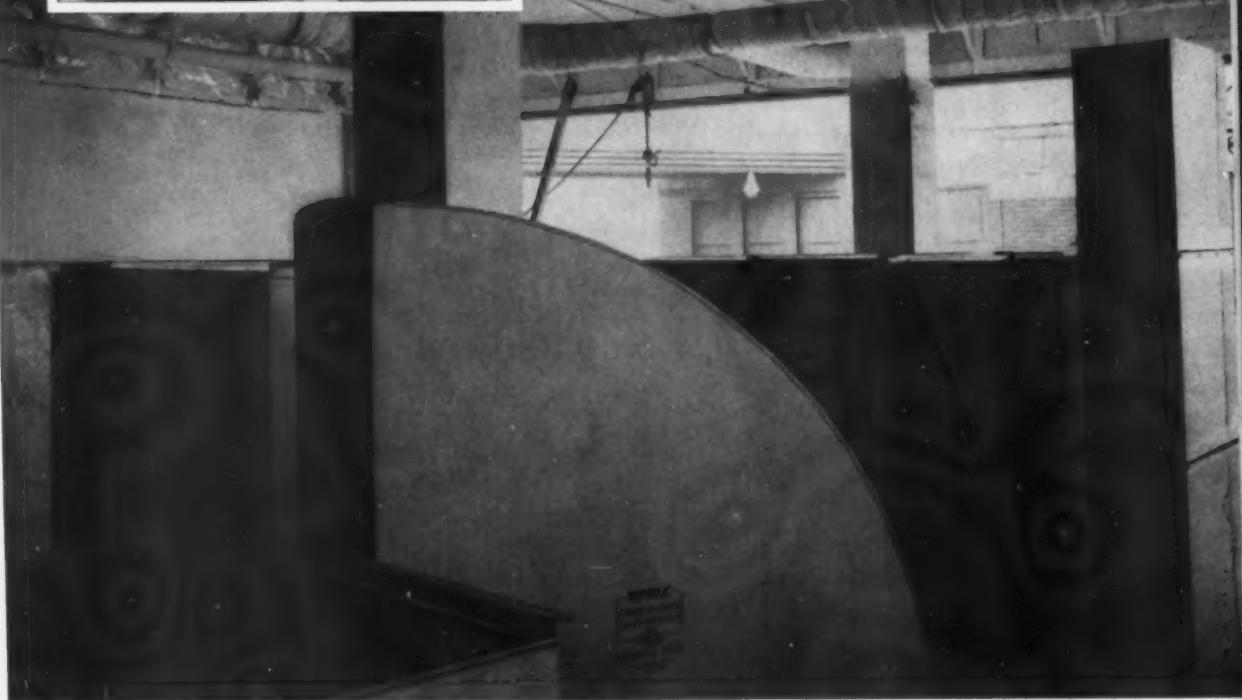
Advisory Council, headed by Keith T. Davis, Bryant Div., Carrier Corp. Otto J. Ress, Mueller Climatrol Div., Worthington Corp., as chairman of the Residence No. 4 Planning Committee, will analyze the data obtained.

Describing the association's current research project, NWAHACA's president, Frank Meyer, Meyer Furnace Co., outlined research programs conducted by the group since its founding 40 years ago and described some of the benefits that have been derived by the industry from such programs.

George Boeddener, managing director of the association, described the initial phases of the test program at Residence No. 4, stating that two systems of introducing warm air into a room will be studied. One system will use baseboard and low wall diffusers located on the outside wall, with return grilles in each room located on partition walls. The second system will use high side wall registers located on partition walls with

(Continued on page 32)

SKILLED CRAFTSMEN



FROM MONUMENTAL BUILDINGS TO PRIVATE HOMES Republic Continuous Galvanized Sheets provide the rigidity and corrosion resistance required for quiet, economical, trouble-free air conditioning and warm-air heating

duct work. Its tight, galvanized coating will not crack, flake, or peel under any operation permitted by the base metal. Send coupon for full information on Republic Sheet Products.

FOR TOP-QUALITY FOOD PREPARATION
CENTERS like the kitchen of the American Hardware Mutual Insurance Company, Minneapolis, Minnesota, shown here, Republic ENDURO Stainless Steel is used to produce easy-to-clean equipment. In addition, ENDURO is impact, abrasion, and heat resistant—requires little or no maintenance to preserve handsome appearance indefinitely. There is no applied surface to crack, chip, or wear away. Dense, lustrous finish provides no foothold for unsanitary accumulations. Send coupon for literature.



DESERVE REPUBLIC QUALITY SHEETS

Top quality in any sheet metal fabricating job requires two basic elements. The first is skilled design and workmanship. The second is quality material. Both should be matched to the degree of durability and economy called for by service conditions.

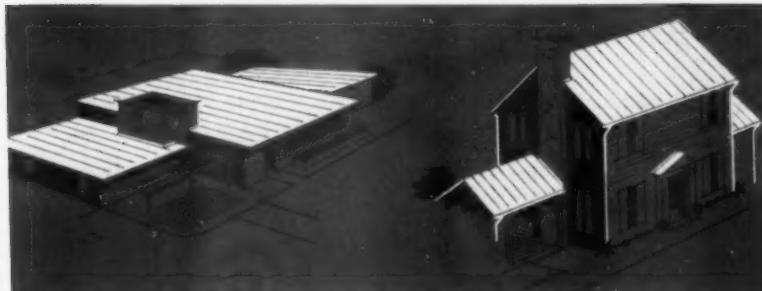
This is why it pays to back your fabricating craftsmanship with top quality Republic Sheet Products. Whatever the operating requirements, there is a Republic Sheet available to provide maximum service economy. For example:

REPUBLIC CONTINUOUS GALVANIZED sheets offer good corrosion protection at low initial cost. Zinc coating withstands any forming operation without damage.

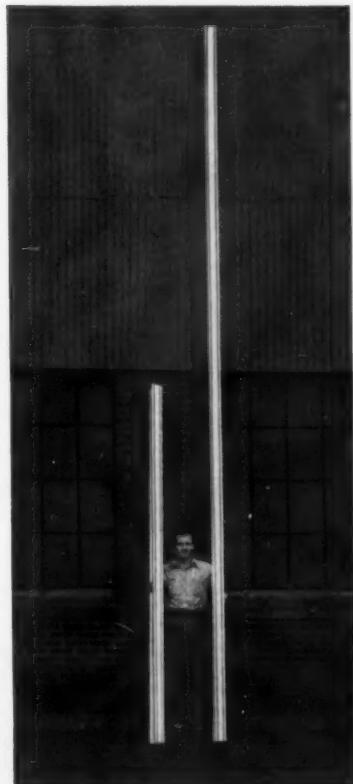
REPUBLIC ELECTRO PAINTLOK® sheets provide an excellent surface for paint. Chemically treated zinc coating withstands severe fabrication—limits corrosion to point of damage if applied finish is scratched through.

REPUBLIC ENDURO® STAINLESS STEEL sheets are the answer to many applications requiring lifetime beauty, high corrosion resistance, and minimum maintenance. In addition, they provide high strength at no increase in weight...plus excellent heat, abrasion, and impact resistance.

For full information on Republic's complete line of sheet products, contact your local steel warehouse—your steel service center—or send coupon.



QUALITY BUILDINGS DESERVE REPUBLIC'S SPECIALLY PREPARED NEW AMBER COLOR ROSIN-BASE PAINTED TERNE METAL ROOFING. Easier to form—roll, bead, seam, or bend it quickly into the shape you need for any roofing application. Easier to solder—amber rosin-base paint actually increases solderability, even without fluxing. Also provides good bonding qualities for easily applied prime cover paint coat of any desired color. Slightly tacky surface reduces danger of workmen slipping on roof. Send coupon for complete details.



SKILLED CRAFTSMEN SAVE TIME with Republic "House-Long" Gutters for roof drainage jobs. Available in galvanized steel up to 32 feet long, these new Style "K" Gutters are the straightest on the market. Extra length does away with up to 50% of the measuring, cutting, and soldering ordinarily required. Moreover, absence of extra seams improves appearance and eliminates potential points of failure in completed installation. For facts, mail coupon.

REPUBLIC

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*World's Widest Range
of Standard Steels and
Steel Products*



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DEPT. AA-5256-A

1441 REPUBLIC BUILDING • CLEVELAND 1, OHIO

Please send more information on:

<input type="checkbox"/> Continuous Galvanized	<input type="checkbox"/> ENDURO Stainless Steel
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"Here's a really USABLE PLIER"

Says Ray Lindner of Buffalo, N. Y., recognized as the expert mechanic who can "fix it" when others fail. Mr. Lindner has been a mechanic for 40 years and owner and operator of Lindner's Garage for 33 years.



"CRESTOGRIp" PLIER
No. P210. Retails for
\$3.00. If your hardware
dealer can't supply you,
order from the factory.
\$3.00 postpaid.



GET YOUR COPY!

Ideas and guidance for the professional and amateur mechanic. Forty pages of *help*... profusely illustrated. Proven ways of doing it easier with good hand tools. A new and revised edition of a "how-to-do-it booklet" that mechanics and industrial arts teachers by the tens of thousands have endorsed. Send 10¢ to cover postage, or GET A FREE COPY with the purchase of *any* CRESCENT TOOL. Ask your local hardware dealer. This offer is limited to the continental U. S. A. SEND A DIME TODAY! OR ASK YOUR HARDWARE DEALER FOR YOUR FREE COPY as explained above.



"This CRESTOGRIp Plier grips better with less handle pressure than any utility plier I have ever used. Its box joint is the reason. Ordinary lap joints generate much more frictional resistance. Crescent's box joint is not only smoother working but much stronger. It's easy to adjust, easy to use...a really different and better tool!"

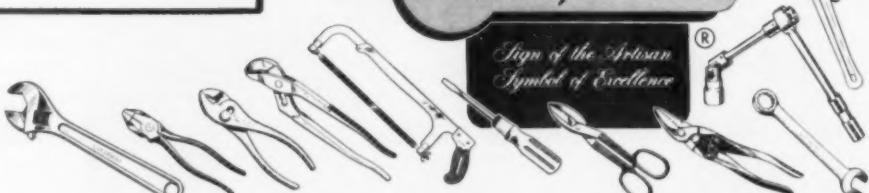
QUICK, POSITIVE ADJUSTMENT

This cut-away view shows joint construction with its extra generous bearing surface at the arrow point.



CRESCENT TOOLS
Give Wings to Work

*Sign of the Artisan
Symbol of Excellence*



Crescent is our trade-mark, registered in the United States and abroad, for wrenches and other tools. Sold by leading distributors and retailers everywhere and made only by
CRESCENT TOOL COMPANY, JAMESTOWN, NEW YORK

Luxaire...

the **2** in **1** combination

DOUBLES Your **PROFIT** Possibilities

1 When you need to be competitive, you have the right price with Luxaire!

This is a stable price that you can depend on — made possible by converting the *cost savings* from Luxaire's more efficient, high-volume production into *price savings* for you — low enough to permit you to bid Luxaire superiority against cheaply constructed units!

2 When you need excellence, you have the right qualities with Luxaire!

Beneath the handsome cabinets of Luxaire Furnaces and Air Conditioners are the heavier construction and uncomplicated design that give Luxaire an enviable reputation for trouble-free performance. So you can make an extra margin of profit on replacement jobs with Luxaire!

2 in 1 Luxaire has eliminated the problem of choosing between a low price and excellence. For Luxaire gives you both!

See your Luxaire jobber, today!



Winter Air Conditioner with Optional Accessory Return Air Cabinet installed.



Oil Winter Air Conditioner has Factory-Installed Refractory Firebox.



Winter Air Conditioner with Plenum-Type Cooling Coil.

GAS FIRED . . . OIL FIRED . . . ASSEMBLED AND WIRED!

Save time! Save space! Save money! Compact new units ready to set in place and connect to fuel line, electrical supply, ducts and thermostat! Gas — 75,000, 100,000, 125,000 and 150,000 Btu Input — Upflow and Counterflow! Oil — 78,400 and 112,000 Btu Output Upflow and 78,400 Btu Counterflow! High static approvals for Add-On Cooling!

Luxaire . . . EXCELLENCE FOR EVERY INSTALLATION!



Basement Type Winter Air Conditioning Units. Burn either Gas or Oil.



Counterflow Units and Utility Units. Burn either Gas or Oil.



Gravity Furnaces. Burn either Gas or Oil.



Horizontal Furnaces 4 Oil Burning Sizes 4 Gas Burning Sizes



Gas Duct Furnaces 4 Sizes



Gas Unit Heaters 5 Sizes



Gas Conversion Burners



Combination Year 'Round Air Conditioning Units. 2, 3 or 5 H.P. Air or Water Cooled. Burn either Gas or Oil.



Water Cooled Add-On Summer Air Conditioning Units. 3 and 5 Tons.



Air Cooled Add-On Summer Air Conditioning Units. 2, 3 and 5 H.P. Compressor-Condenser Assemblies available with Duct or Plenum Type Cooling Coils.

THE C. A. OLSEN MANUFACTURING COMPANY . . . ELYRIA, OHIO

Luxaire

HEATING & AIR CONDITIONING UNITS

WHAT'S HAPPENING . . . including Washington Letter

(Continued from page 27)

New FHA Standards Include Heating, AC Requirements

WASHINGTON, D. C. — The Federal Housing Administration has set up Minimum Property Standards for one and two living units, which include, in addition to construction requirements, minimum requirements covering Mechanical Equipment (including heating and summer air conditioning); Materials and Products (including sheet metal, vapor barriers and insulation); and Exterior and Interior Covering Materials (including gutters and downspouts, flashings, and roof coverings). The minimum standards, available Nov. 1, apply to eligibility of properties for mortgage insurance.

The section on heating covers: Construction and Installation; Corollary Items (chimneys, flues, vents, smokepipes, controls, barometric dampers, draft hoods, fuel oil tanks and piping); Heat Loss Calculations; Capacity of Heating Equipment; Rating, Construction and Accessories for Warm Air Furnaces, Space Heaters and Floor Furnaces; Firing Equipment; and Design and Installation of Warm Air Systems.

Summer air conditioning standards cover Capacity and Labeling of Equipment, Heat Gain Calculations, Distribution Systems, Noise Abatement, Electrical Wiring and Motors, and Guarantee.

SMACCNA Appoints New Assistant Secretary

ELGIN, ILL.—J. F. Fitzgerald has been named full time assistant secretary for Sheet Metal and Air Conditioning Contractors National Association. Experienced in labor relations, business management and construction, he will assist Executive Secretary Joseph D. Wilder in an increasing number of special projects which have been scheduled.

See Sharp Rise in Gas Air Conditioning, Heating Sales

NEW YORK CITY — Year 'round residential gas air conditioning units shipped during the first six months of 1958 reached a total of 3436, according to the American Gas Association. This represents a gain of 2131 over the number of units shipped during the first six months of 1957.

W. W. Selzer, chairman of the AGA air conditioning committee, says the gas industry forecasts shipments in excess of 7000 residential gas units during 1959, compared with 2467 shipped in 1957.

Mr. Selzer said that the marked upturn in sales of year 'round gas units was due to increased sales promotion efforts by gas utilities, to improvements in design and operation of gas air conditioning units, and to

NWAHACA Studies Multi-Level Heating

(Continued from page 27)

return grilles located under windows in the outside wall.

The air distribution systems have been designed to permit the use of two and three furnaces in future tests; however, the 1958-59 tests will be conducted with one furnace.

Research equipment will include six miles of wires built into the structure to provide instantaneous temperature information from more than 475 points inside and outside the house, within the walls, floors, and other parts of the structure itself, and from units of the year 'round air conditioning system. These wires will connect with recording instruments and panels in one section of the double garage.

Data obtained will be applicable to normal family living conditions as the house is to be occupied by a young married couple and their child.

a substantial reduction in unit prices in 1958.

He predicted the combination gas heating and cooling units would get a larger share of the market in 1959 as the gas industry puts increasing emphasis on building summer sales loads.

The industry also anticipates an increase in the sale of gas-fired warm air furnaces. According to a report recently released by the Gas Appliance Manufacturers Association, sales of gas furnaces during the last half of 1958 are expected to reach a total of 445,800, bringing the annual total to 765,100 units, or 8.9 percent more than last year. A substantial increase is expected in 1959, when sales are expected to reach 841,700 units, a 10 percent increase over this year's volume.

GAMA also predicts substantial gains in the sale of gas-fired heavy duty forced air heaters (direct-fired heaters, or heat diffusers, with capacities in excess of 500,000 Btuh output). Heaters in this category using gas, or gas in combination with oil, probably will account for a 1958 production total aggregating well over 3 billion Btu output, according to GAMA. This total is termed approximately double that of two or three years ago.

Sales of automatic gas water heaters are expected to continue strong, with 1958 sales totaling 2,679,700, up 5.8 percent, and next year's total reaching 2,732,300, up 2 percent.

Next year's sales of gas incinerators are expected to show a 41 percent gain over 1958 totals.

A drop in sales volumes is seen by gas conversion burner manufacturers, who expect sales to be down 14.4 percent this year and to decrease another 2.6 percent next year. For gas floor furnaces, successive decreases of 18.6 and 2.5 percent are anticipated.

Salesmen Need Tools Too!



THIS DEMONSTRATOR PROVES VICTOR FINS SAVE FUEL!

It's the finest, most believable little sales closer on the market today. Twin thermometers tell the story of patented VICTOR FIN efficiency. One side of this table-top furnace has FINS. The other does not. It proves, right before the prospect's eyes, that exclusive VICTOR FINS save up to 30% in fuel used. It's honest . . . It's dramatic . . . It closes sales FAST!



VICTOR SUPPORTS YOUR SALESMEN WITH TOOLS WHICH CLOSE SALES FAST

Sales Tools:

TABLE-TOP FIN DEMONSTRATOR

SALES EASEL

20 YEAR WARRANTY

2 & 3 COLOR FOLDERS
SALES CATALOGS
ROAD SIGNS
TRUCK DECALS
NEWSPAPER MATS
RADIO SPOT COPY
COUNTER DISPLAYS
WALL HANGERS

You wouldn't think of sending your servicemen out without tools . . . but, are you and your SALESMEN fully equipped with effective tools to sell successfully in today's competitive market? There is no finer line of fast closing sales tools in the industry than those made available by VICTOR to their dealers everywhere. No expense, ingenuity, time nor research has been spared to assure you success and bigger profits from faster sales with VICTORS! A complete line of Coal, Gas and Oil Low-boys, Hi-Boys, Counter-flows and Suspended units to meet every installation problem is ready for speedy shipment. Write, Wire or Phone us TODAY! You'll make more money with the VICTOR heating and cooling line!

MAIL THIS COUPON TODAY

HALL-NEAL FURNACE CO.
1322-42 N. CAPITOL AVE., INDIANAPOLIS 7, INDIANA

Please send complete information about an exclusive VICTOR Franchise and details of your dealer sales tools, without obligation.

NAME _____

FIRM _____

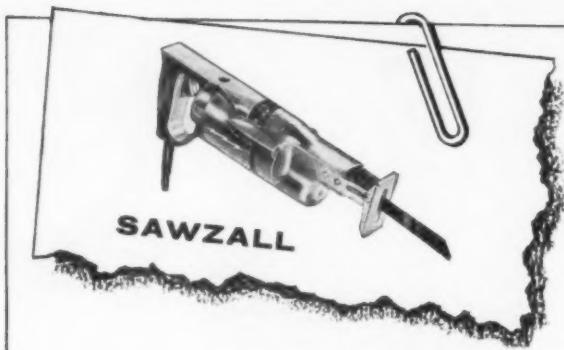
ADDRESS _____

CITY _____ STATE _____

HALL-NEAL FURNACE CO.

Quality Furnaces Since 1890

1322-42 N. CAPITOL AVE.
INDIANAPOLIS 7, INDIANA



July 11 1958

milwaukee elec tool corp
5317 w state st
milwaukee 7 - wis.

Dear Sirs



It is not often I take time out to write a letter of this sort, but in the Plumber and Heating line I have to use as many time saving tools as I can to make a profit on jobs. I have never had a tool that I thought more of than my Sawzall saw. When you people make this tool you sure had us fellows in mind.

If it were impossible for me to buy another I would take no amount of money for this saw. I have told everyone about it and they have bought one to. This evening I was cleaning up my saw and I noticed that you now have this new blade 104-1-677. Please send me at once a package of these blades as they are just what I want also one (1) no 4512 Paint the assembly. also 1 can of mates Grease also one set of no. 440-320 Brush and Bush Holes assembly send C.O.D. please.

PS. I am enclosing my
writter card but I know I
will never have to use it

O.H.

Please
Rush

Thanking You

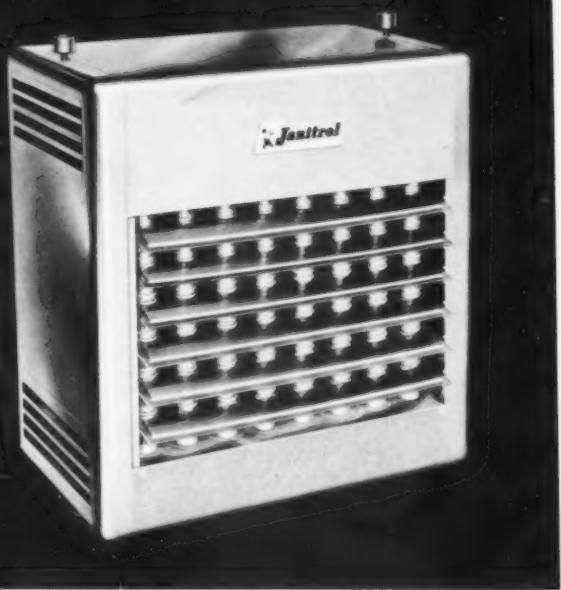
Howard Johnson
John Home App
Malone N.Y.

the quality tells...the quality sells

new
JANITROL
UNIT HEATERS



provide fast, clean heat for a variety of applications



Sell and Grow with JANITROL

Gas-fired Commercial and Industrial Heating Equipment

VERSATILE NEW JANITROL UNIT HEATERS

Remember this about Janitrol Unit Heaters: their versatility and efficiency, combined with low cost, means you can use them to advantage for most every commercial or industrial building.

They save installation time and labor. They do not need expensive duct work. They are completely automatic. They offer convenient "dual fuel" performance—use natural or LP gas; may be switched from one fuel to the other automatically. And

they direct heat *where needed only when* it is needed—assure top operating economy.

And remember, too, that no other unit heater can match their record for durability and low maintenance. The exclusive Janitrol Multi-Thermex heat exchanger is so enduring that replacements for any cause have been less than $\frac{1}{4}$ of 1% in over two million heat exchanger tubes produced since 1940!

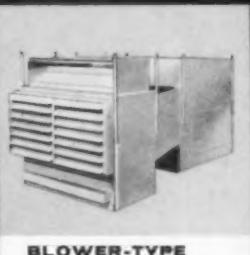
Dependability and economy—these are benefits that only time and experience can bring. Be sure Janitrol Unit Heaters are the choice for your next job.

Fill every commercial and industrial heating need from JANITROL'S broad line . . .



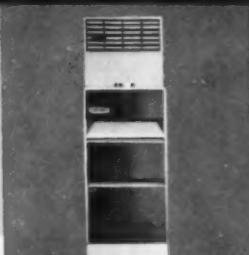
GAS-FIRED DUCT FURNACES

Engineered for installation in a duct where air is circulated by a separate blower. Especially adaptable for use in combination with cooling. Two sizes: 200,000 and 300,000 Btu/hr. input—may be combined to provide capacity from 200,000 Btu/hr. up, in increments of 100,000 Btu/hr. input. Five sizes, from 85,000 to 225,000 Btu/hr. in Duct 55 models.



BLOWER-TYPE UNIT HEATER

Allows air delivery from greater heights and against greater static pressures. Models with exposed or enclosed blowers. A.G.A. approved as low and high static-type blower unit heater for air delivery to duct system up to 1.0 in. W.C. external static. Heat sections factory assembled. Sizes: 300,000, 400,000 and 500,000 Btu/hr. input.



FLOOR-TYPE UNIT HEATER

Cold air drawn from floor level is heated, filtered and discharged horizontally overhead. Quiet, clean, carefree—ideal for offices, restaurants, stores, labs, etc., requiring a compact unit. May also be connected to a duct system. Six sizes: Rated input from 65,000 to 200,000 Btu/hr.



HEAVY DUTY BLOWER HEATERS

For unit heating, central heating and air conditioning. Wide range of standard blowers and motors assures correct air delivery and temperature rise in each application. Factory assembled and tested. Capacities from 250,000 Btu to 1,750,000 Btu/hr. input.



NEW JANITROL HORIZONTAL OIL UNIT HEATER

For suspension overhead. Saves floor space. Compact, efficient, low-maintenance design. May also be used to feed duct system. Sizes from 84,000 to 250,000 Btu/hr. output.

ARCHITECTS, ENGINEERS AND CONTRACTORS *information service*

Write today for complete information on heating with gas in buildings of every type. There's no obligation.

JANITROL
HEATING AND AIR CONDITIONING DIVISION
Surface Combustion Corporation, Columbus 16, Ohio
In Canada: Moffat Heating & Air Conditioning Division
Moffats, Ltd., Toronto, 15
Also Makers of Surface Industrial Furnaces, Kathabar Humidity
Conditioning, Janitrol Residential Heating and Cooling Equipment

NEW

...today's first
adjustable—FOR—HEATING
adjustable—FOR—COOLING

PERIMETER DIFFUSERS

DUAL FINGERTIP CONTROLS



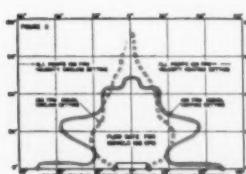
Today's MOST ADVANCED DIFFUSERS . . . AT A TRULY COMPETITIVE PRICE. Obsolete ALL others in APPEARANCE . . . DESIGN . . . PERFORMANCE!

Because they are FULLY ADJUSTABLE . . . the new Titus MODEL P-125 diffusers are today's only baseboard diffusers that can provide the proper throw and spread for obtaining maximum performance from BOTH HEATING AND COOLING SYSTEMS.

Years ahead in looks, too! New distinctive swept-line styling blends beautifully with any surroundings.

New ECONOMY MODEL P-75 has same, superb styling and basic ADVANCED design as Model P-125 except does not have dual adjustment feature. CAN GIVE YOU THE CONTRACT AGAINST ALL KINDS OF PRICE CUT BIDDING BECAUSE THEY ARE BETTER LOOKING, ARE CONSTRUCTED BETTER, ABSOLUTELY OUTPERFORM COMPETITION.

Both of these new Titus models have a large 32 sq. in. of free area. Both are quicker, easier to install. Provide lasting satisfaction—GIVE THAT EXTRA IN HEATING & COOLING COMFORT THAT MAKES AND KEEPS CUSTOMERS HAPPY.



PROOF!

Isolines from laboratory tests prove Titus new adjustable perimeter diffusers FAR SUPERIOR in PERFORMANCE! Dotted red line shows how cool air is forced to ceiling when Model P-125 diffuser is set for COOLING. Solid red line shows that when diffuser is set for HEATING warm air is diffused in broad pattern so it covers entire window or wall area.

designed by

TITUS

WRITE FOR FREE CATALOG

TITUS MFG. CORP., WATERLOO, IOWA

Rush new free illustrated Titus Perimeter Diffuser Catalog
 Send name of jobber nearest me

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____



ABSOLUTELY DEPENDABLE DELIVERY



With Ryerson immediate service, you get delivery of every requirement exactly when you need it—where you need it—every time. This is priceless assurance when delays could cause idle manpower or even lost business. For galvanized sheets—or for any type of steel—look up to dependability . . . call your nearby Ryerson plant.

SIX-WAY RYERSON SERVICE

- 1. Exact length on net weight basis**—when your order is cut from stock width coils, we furnish 4' to 16' lengths in $\frac{1}{4}$ " increments.
- 2. One sure source for all requirements**—whether steel is plentiful or scarce, nobody approaches the size and variety of Ryerson stocks.
- 3. Correct weight**—and fair prices year in and year out.
- 4. Good packaging**—tightly banded steel, skidded with sound lumber, cuts labor costs, protects steel, makes handling easier.
- 5. Ryerson Certified Quality**—all Ryerson steels are backed by rigid quality controls to protect you fully on every purchase.
- 6. Absolutely dependable delivery**—a priceless assurance when delays could cause idle manpower or even lost business.



RYERSON STEEL®

Member of the  Steel Family

Principal Products: Carbon, alloy and stainless steel—bars, structural, plates, sheets, tubing—aluminum, industrial plastics, metalworking machinery, etc.

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • WALLINGFORD, CONN. • PHILADELPHIA • CHARLOTTE • CINCINNATI • CLEVELAND
DETROIT • PITTSBURGH • BUFFALO • INDIANAPOLIS • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

Review Pricing Structure for Volume Work



BUSINESS FOR THE REST of 1958 looks better than it did a few months ago and much better than in February when non-farm housing starts reached a rate of 915,000 for the year.

As we know, the rate of non-farm housing starts is closely related to the number of new central heating systems sold annually. With an increase in non-farm housing starts, business conditions for the dealer-contractor should improve.

In July the non-farm housing start rate had jumped to 1,160,000. A recent survey by Fortune magazine indicates the annual rate will reach 1,300,000 by the end of the year and should hold at this rate throughout 1959. This compares with a rate of 1,396,000 in 1950 which is the highest on record.

This is a favorable environment for dealer-contractors who specialize in the new house market and should be carefully weighed in dealings with builders and general contractors. Too many dealer-contractors, in an effort to retain employees, cut all profit out of their bids when housing starts were at their lowest point. This temporary situation must be corrected if any profit is to be realized from new house work.

There is a definite relationship between profit, pricing procedures, and volume. This relationship is not as simple as it first appears to be, especially when basic and rigid arithmetic formulas are applied. There are many factors involved in pricing work based on volume installations. The main factor seems to be the project builder who expects a lower price per job on contracts for larger numbers of houses. Too often, the dealer-contractor grants a price deduction based on this expectation without attempting to point out to the builder that a price reduction isn't possible, even to meet lower bids of others.

The strongest answer to price competition is better service to the builder and to those who buy his houses. This requires harder selling but it cannot be neglected by dealer-contractors who honestly bid the job to include a fair profit and a reserve to carry out a one year service obligation.

Instead of attempting to reduce the price per job the next time a builder asks for it, play up these six points which identify you as a specialist who:

- 1) Offers a quality job at a quality price.
- 2) Employs only trained workmen.
- 3) Schedules work to prevent delays to other crafts.
- 4) Applies the latest engineering information available.
- 5) Offers the prestige value of a reputation for fast, reliable customer service.
- 6) Controls job costs with well equipped shop facilities and modern tools.

The points outlined above can also be used effectively in the modernization market to show why buying preference should be based on quality rather than other less important factors.

Wholesaler Lays Down a Standards Barrage



BUYING INFORMATION for the public is theme of newspaper ad being readied by Kerscher Co. management team (from left): Francis W. Kerscher, Ray D. Totten and Vincent J. Kerscher



ENGINEERING ASSISTANCE helps dealer-contractor A. R. Esserman (left) solve air distribution problem. Solution is worked out by wholesaler's engineer, Wilbert M. Hasche (right) and Ray D. Totten

IF A DEALER-CONTRACTOR installs quality heating systems, half of his selling job is done when the public has been told how and why to buy complete winter comfort. The Kerscher Co., wholesaler of Manitowoc, Wis., is proving this theory with a campaign of local newspaper advertisements showing the consumer how to purchase a heating system.

Since the advent of American Artisan's *Standards for Rating Heating Systems*, this wholesaler's advertising campaign has been built around this sales tool. His salesmen, too, stress the value of advertising this tested buying yardstick in their calls on dealer-contractors.

This wholesaler is convinced that a well-informed public will insist on

... not only to the public served by his dealer-contractors, via hard-sell newspaper ads, but also to the dealer-contractors themselves to prove to them the outstanding rewards they can realize by using this proven sales tool to promote comfort

heating systems which can meet the requirements listed under the "Good System" classification on the *standards* card. Recently, the firm ran a quarter-page (7 1/4 X 11 1/2 in.) newspaper ad similar to the sample advertisement presented in September 1957 American Artisan but more institutional in its invitation to readers to call on "your local heating and air



CITY SALES COUNTERMEN "TALK UP" value of *standards* card as sales tool. Supply is kept for handout to each dealer-contractor who calls at the counter

conditioning dealer" rather than a specific firm, for which the sample ad was prepared.

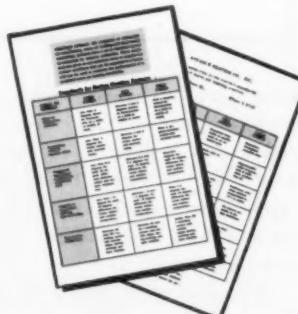
The ad depicts a comfortable family under the headline, "WHAT'S YOUR HOME HEATING SCORE?" A subhead proclaims, "Now There's a Way You Can Rate Your Own Warm Air Heating System." Farther down, a prominent drawing of a lady pointing to a representation of the card is captioned, "Send for this FREE chart." The copy also lists "some of the benefits a good system should provide," enumerating four of the 12 points a home owner should consider when purchasing a new heating system.

Tie in with Builder's Pages

Quarter-page or half-page ads of this type are published periodically in Saturday editions to tie in with the popular building sections. Each ad lists some of the points to consider from the *standards* card and suggests that home owners contact local dealer-contractors or the Kerscher Co. for free copies of the complete *standards* card.

One evidence that the public is reading and considering the information presented in the ads came in a call from a Manitowoc housewife to the Kerscher Co. She reported that the dealer-contractor she had con-

tacted (in response to the ad) did not have a copy of the *standards* card. She asked the Kerscher Co. for one. Several days later she called again to say that the same dealer-contractor had examined her stand-



THIS ARTICLE describes another way the Standards for Rating Heating Systems card has been used to sell modernization. The standards card, introduced in July, 1957 American Artisan, is ideal for use with the Heating Checklist promotion tool presented in the March, 1958

American Artisan Modernization Issue. Attractively designed and written in language the home owner can understand, the standards card lists the 12 points which contribute to complete winter comfort in the home, and rates the prospect's heating system as "Good," "Fair" or "Poor" in terms of each of the 12 comfort conditions. The card adds authority to the sales presentation, and proves conclusively to the prospect the advantage of buying for quality rather than price. Copies of the standards card are available at two cents each from American Artisan.



LETTER TO DEALER-contractors from Francis W. Kerscher encourages the use of the *Standards for Rating Heating Systems* in local level advertising to aid prospects in purchasing systems which will supply comfort throughout the heating season

ards card and did not want to install a heating system which would meet the requirements outlined in the "Good System" column. She requested the name of a dealer-contractor who would be willing and able to install a system which would provide the comfort conditions produced by a "Good System."

Serves Vast Area

Managed by President Francis W. Kerscher, Vice President Vincent J. Kerscher and Merchandising Manager Ray D. Totten, the firm serves the upper two-thirds of Wisconsin and the northern Michigan peninsula. Five salesmen contact 360 dealer-contractors in this area.

Because the territory is so large, it is impossible to run ads in all the papers which serve the far-flung force of dealer-contractors, and the campaign must be restricted to the Manitowoc newspapers. However, Mr. Kerscher obtained proofs of the *standards* ad, which he sent to each dealer-contractor along with a *standards* card and a covering letter describing how he could build prestige in his area by advertising that his installations meet the nationally-accepted specifications for a good heating system. (See text of this letter reproduced above.)

Salesmen Follow Up

Following up the mail campaign, each salesman provides the dealer-contractors he contacts with a supply of the *standards* cards. These calls give the salesmen a chance to explain the *standards* in detail, promote the advantages of upgrading heating

Gentlemen:

We were talking to a home owner the other day, who was in the market for a new heating system. He mentioned the fact that he had received several bids but was in no way able to decide which bid to accept, because of his inability to determine what he was getting for his money. So, therefore, he thought he would select the lowest bidder without knowing too much about what he was getting.

To us this seemed like a pretty normal approach by a home owner when buying a furnace and also a pretty damaging indictment against our industry's method of selling and educating our customer.

The answer seems to be, then, as dealer-contractors we must completely educate our customer as to what he gets for his money so that he can choose our equipment and installation service with confidence and pay us a fair price for it.

Attached to this letter is an ad which appeared in a recent issue of the Manitowoc Herald-Times and is our humble attempt at helping our local dealer-contractors do some of this education job.

We are sending you a copy of this ad in the hope that you may be able to use the idea in your locality and also in the hope that you might appreciate the necessity for such action.

The chart that is referred to here is a result of many years of testing and experimentation by the National Warm Air Heating Association and sets forth standards which you can rely upon as being good standards. This card was prepared and published by American Artisan magazine.

These cards are available in any quantity that you may be able to use. Just drop us a line and let us know how many you want.

sales and exchange ideas among dealer-contractors for using the *standards* in selling. As the campaign progresses, salesmen build files of case histories which prove the advantages of using the *standards* in selling at the local level.

This promotion continues at the Kerscher Co. city sales room where the counter man gives a *standards* card to each dealer-contractor who makes a purchase or calls for information, and tells him how he can use the card to demonstrate his presentations to prospects and customers. The value of this approach has also been proved, by the number of dealer-contractors who have ordered extra copies of the card after visiting at the sales counter.

The Kerscher Co. offers its engi-

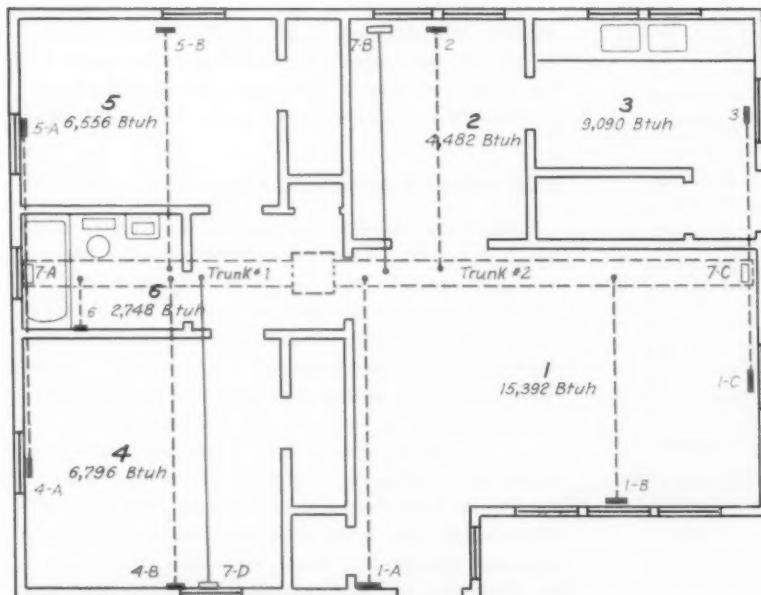
neering experience to help the firm's dealer-contractor customers in designing and laying out air distribution systems which will satisfy the specifications listed in the "Good System" category. The procedures are explained carefully to the dealer-contractors who seek assistance, to train these men to be *standards*-conscious in all future work.

Response to and interest in the program by dealer-contractors has been gratifying. To expand its service activities, the wholesaler has scheduled a late fall dealer-contractor meeting which will be devoted exclusively to discussions of the *Standards for Rating Heating Systems*, how it can be used as a sales aid and how the systems can be designed to meet its requirements.

NO STRANGER to American Artisan readers and the heating-cooling field, Guy Voorhees is one of the industry's outstanding authorities. For many years, he has been associated with NWAHACA, assisting in the preparation and presentation of educational programs, technical manuals and government and industry reports. Mr. Voorhees long has been in a position to keep abreast of latest developments, and his reports in this continuing series in American Artisan reflect these up-to-the-minute ideas.



Compensate for Variables In Basement Heat Loss



1 BASEMENT SUPPLY DUCTS (solid lines) take off from extended plenum to perimeter outlet locations. Branches 7-A and 7-C are downcomer ducts from bottom of extended plenum; 7-B and 7-D have top takeoffs, run between joists and connect to downcomers. Extended plenums and branches to first floor are dotted lines

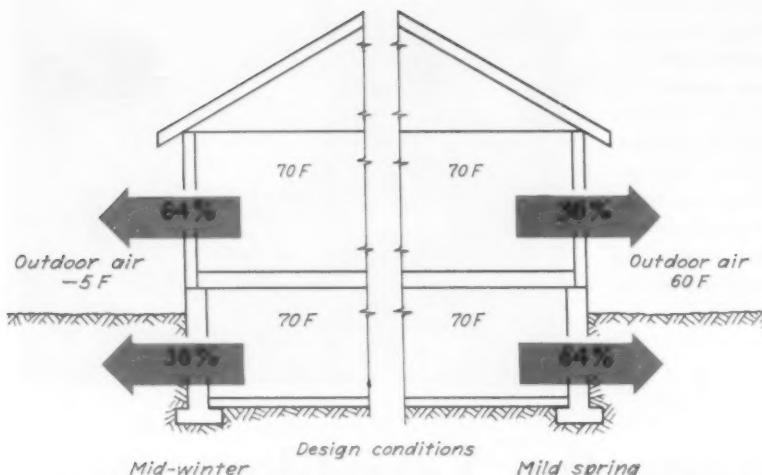
LAST MONTH'S "CLASSROOM" discussion was devoted to sizing and locating branch ducts and outlets to overcome varying loads in heating the basement for occupancy.

Having calculated the capacities and locations of all the branches (Fig. 1), we are ready to size each extended plenum trunk.

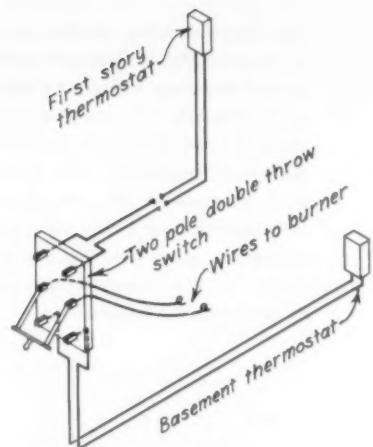
Manual 4 suggests that trunks be sized on the basis

Once ducts and outlets have been located and sized to handle basement loads, the problem arises of maintaining even temperatures in mild spring weather when basement heat loss is greater than upstairs. Zone control is the answer, but what if the customer rules out this solution?

of the cfm capacities of the branch ducts they supply. For each duct size listed in Manual 4 and in supplementary tables in this "classroom" series, for each size and length of duct and number of elbows, the cfm capacity is given for 4 in., 5 in. and 6 in. ducts with top and side takeoffs from the extended plenum and for different lengths and number of elbows. From these tables we find the follow-



2 PERCENTAGE OF HEAT LOSS from above grade and below grade portions of basement is reversed in spring with outdoor temperature of 60 F from design conditions when outdoor air temperature is -5 F



3 TWO-POLE double throw switch may be used to change control of burner from one thermostat to another to compensate for seasonal variations in heat loads

ing cfm capacities for the two trunk ducts (Fig. 1) of our problem house:

Extended plenum trunk no. 1		Extended plenum trunk no. 2	
Branch no.	cfm	Branch no.	cfm
4-A	53	1-C	53
5-A	53	3	122
7-A	93	7-C	93
6	47	1-B	73
4-B	44	2	73
5-B	44	7-B	64
7-D	62	1-A	73
Total	396		551

The current edition of Manual 4 shows that for 396 cfm, the size of trunk no. 1 would be 10 × 8 in. and for 551 cfm trunk no. 2 would be 14 × 8 in.

What About Spring Heat Losses?

This completes the design of the warm air distribution system for our problem house for design temperature conditions and for using three sizes of branches from the extended plenums. But we still face the problem of heating the basement fully and comfortably in the spring when the heat loss of the basement is greater than that of the first story rooms.

It was shown in May American Artisan that under design temperature conditions, the heat loss of the first story rooms was 64 percent and that of the basement was 36 percent of the total heat loss of the house. But in the spring with an outdoor air temperature of 60 F, the heat loss of the basement was 64 percent and the first story

36 percent of the total, as indicated in Fig. 2. (This assumes that the temperature of the earth in contact with the outside surfaces of basement walls and floor is approximately the same in early spring as in mid-winter.)

Recommend Zone Control First

What can we do about such a condition? The best solution is a first-class zone control system. Such a system is more expensive of course but it offers better comfort conditions throughout the heating season, and increased profit for the dealer-contractor. Discussions with many dealer-contractors reveal that few have made any real effort to sell zone control systems. Those who do make a consistent effort to upgrade their installations wherever needed by adding zone control report that many homeowners are willing to pay more when they learn of the improved comfort and convenience obtainable with zone control. Any dealer-contractor who is not familiar with such systems and their possibilities should contact his wholesaler and find out what he can do with zone control.

If Customer Vetoed Zoning . . .

For our problem house, however, let's suppose that the customer cannot or will not pay the added cost of proper zone control. How will he heat the basement to a comfortable temperature in mild spring weather if his automatic burner is controlled by a thermostat in the living room? A supply duct system is usually sized and adjusted to distribute heat properly to various parts of the house under design temperature conditions. The left side of Fig. 2 shows that with a room air temperature of 70 F and an outdoor air temperature of -5 F, about two-thirds of the

total heat loss of the house is from first story rooms and one-third from the basement. (The relative heat losses of first story and basement were shown in detail for various outdoor temperatures in May American Artisan.) The right half of Fig. 2 shows that when the outdoor temperature has risen to 60 F in the spring the percent of distribution has reversed. At this milder spring temperature only about one-third of the heat loss is from the first story rooms while about two-thirds is now from the basement.

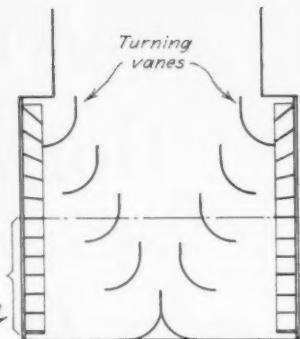
Basement Comfort Means Overheated Upstairs

Under this common condition and without zone control, how does the customer heat the basement comfortably? If he merely sets a living room thermostat high enough to make the basement comfortable, he greatly overheats all first story rooms in mild spring weather. Therefore he probably closes a number of diffusers in first story rooms and keeps his thermostat set at a normal temperature. Since he has reduced both air and heat delivery to first story rooms, it takes longer to satisfy his living room thermostat and consequently, heated air is delivered for a longer time to the basement. By repeated readjustments of air control valves in his first story diffusers he maintains a more comfortable basement temperature. Although this is somewhat of a nuisance, it's better than no control at all.

Compromise With Two Thermostats

As a compromise between this crude control method and a complete zone control system, more and more dealer-contractors install two room thermostats. One, in some desirable first story location, controls the burner during the fall and winter. A second thermostat in the basement controls it during mild spring weather. A conveniently located double-throw switch permits the home owner to change burner control from first story to basement and back again as needed. Fig. 3 shows a schematic diagram for changing temperature control from one two-wire thermostat to another, but for any such hookup, the manufacturer or distributor of the controls should be con-

4 FLOOR DIFFUSERS installed in each side of oversize downcomer are partially or fully closed during winter, opened fully in mild weather



sulted to find the best method for the particular controls being used.

With any such arrangement in our problem house, it would still be necessary partly to close the valves of at least some of the diffusers in first story rooms in mild spring weather when the burner control is switched to the basement thermostat to keep them from becoming uncomfortably warm. Again it should be emphasized that such an arrangement as this does not and cannot give the more desirable automatic adjustment of air and heat delivery to the two sections of the house which would be assured by a proper zone control system.

Oversize Basement Duct

In designing the duct system we found that four 5 in. ducts would deliver the heat quantity needed by the basement under design temperature conditions. Many dealer-contractors who use two thermostats as described above also oversize the basement ducts and place a floor diffuser in each side of each downcomer duct (Fig. 4). They advise the user to close one diffuser completely or partly close both diffusers in each downcomer duct during the fall and early winter months when the heating system is usually controlled only from the first story thermostat. Then in the milder spring weather when the basement heat loss is relatively high and the basement thermostat controls the burner, they advise opening all basement diffusers fully.

Study Metal Bonding Adhesives for Sheet Metal Work

A DESIGN TECHNIQUE of rapidly growing importance is metal-to-metal adhesive bonding, observes Adhesive Horizons, published by Minnesota Mining & Mfg. Co. The article states that high strength phenolic elastomers, vinyl-phenolics and epoxy-resin adhesives are being increasingly used for structural joining of aluminum, brass, magnesium, steel, stainless steel, titanium and copper. In assemblies of thin sheets, the bond strength of the adhesive often ex-

ceeds that of the metal itself. Studies of the strength, weight, stress distribution, sealing and protection characteristics are expected to culminate in increased use of these adhesives in metal working applications. Epoxy resin and nitrile phenolic adhesives have tensile strengths up to 10,000 psi. Modified phenolic adhesives have shear strengths up to 7000 psi. Modified epoxy compounds and epoxy-phenolic compounds retain good strength properties at temperatures

as high as 350 and 450 F, respectively.

High strength phenolic elastomers, vinyl phenolics and modified epoxy resin adhesives have excellent resistance to water, salt spray, oils, glycols and fuels. High strength thermosetting adhesive films provide uniform thickness throughout the joint, controlled confinement to the immediate bonding area, clean bonding and simple application procedures, the item states.

Service Efficiency Boosts Horizontal Furnace Sales

A reputation for excellent service work has exposed this dealer-contractor to many comfort problems which are traceable to poor installation practices, and opened the door to replacement sales of horizontal furnaces

1

ROCK AND ROLL method of loosening and working scale to a point from which it can be removed is demonstrated by Nisbet Co. servicemen



2 REMOVING SCALE from within heat exchanger is a team operation performed by Earl Carpenter (left) and Calvin Brown

THE POPULARITY of the horizontal furnace continues to grow each year, and with its growth emerge problems which are different from those commonly encountered in other types of installations. Analysis of the difficulties experienced and formulation of procedures that will prevent or diminish their recurrence has paid off for the E. P. Nisbet Co., Charlotte, N. C. The company's heating division is managed by J. B. Kuykendall Jr.

In the Charlotte area where most new houses are built over crawl spaces, almost 90 percent of new home installations are horizontal furnaces. This factor has provided a solid basis for determining causes of poor performance and finding ways to overcome or avoid them. E. P. Nisbet Co. has made a specialty of modernizing installations which fail



3 AIR PRESSURE at 120 lb helps move scale around to where it can be reached and collected by the vacuum cleaner hose

to produce the performance and comfort home owners expect.

Slogan Attracts Prospects

The company specializes in servicing all makes of heating equipment. Its slogan, "Over 30 years of 'round the clock service," attracts many calls from home owners whose equipment has never before been serviced. Servicemen are trained to diagnose quickly the complaints that result from improper installation practices.

The first indications that an improper installation may be responsible for a service call are evidence of incomplete combustion, insufficient heat, or complaints of high fuel bills.



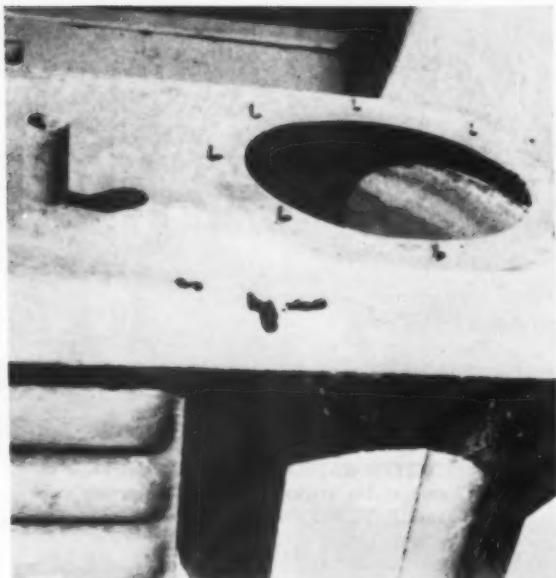
4 DETERIORATED HEAT EXCHANGER is examined for cracks and chips by service manager F. H. Orr (center) and servicemen



5 DEFECTIVE COMBUSTION CHAMBER is marked with crayon and a photo of the deteriorated areas is taken for presentation to the prospect as well as for a record in the company files



6 PRIOR TO CONTACTING the home owner, J. B. Kuykendall Jr. (left) and E. P. Nisbet examine the photo and review causes of deterioration of the heat exchanger



Photos of the deteriorated heat exchanger from his furnace help convince the service customer of need for replacement job

On complaints of this type, servicemen look for a heavy soot deposit near the inspection door of the furnace, which indicates flue gas is escaping at this point.

Further examination of the installation usually shows that the smoke pipe to the chimney is either too long or is run horizontally rather than slanting upward from the furnace smoke pipe collar to the chimney opening.

Inspect Heat Exchanger

Servicemen who find these evidences of poor installation practices immediately proceed to determine if the heat exchanger has deteriorated. (This is a common result of poor crawl space installation practices.) Mr. Kuykendall says that after about five years of service, heat exchangers in furnaces installed in this manner almost always show considerable deterioration. This deterioration, he explains, is caused by the presence

of considerable moisture which creates rust and scale when the furnace is not in use. When moisture mixes with chemical deposits left from incomplete combustion or deposits created when combustion vapors are not removed rapidly enough from the combustion chamber, the deterioration rate increases.

Scale Cuts Efficiency

Although some deterioration occurs on the outside of the heat exchanger and is responsible for dust entering the living areas (another complaint which signals the existence of accelerated deterioration), most of the deterioration takes place on inside surfaces of the heat exchanger. When deterioration occurs in a metal heat exchanger, the scale accumulates at corners of flue gas passages, further impeding the flow of combustion gases toward the chimney and causing a decrease in fuel burning efficiency. This situation is responsible

for another common complaint of home owners — odor of combustion fumes which leak through inspection doors, fill the crawl space and eventually enter the air distribution system and living area.

The complaint of insufficient heat in the living area can often be traced to the high temperatures created within the heat exchanger which cause the furnace to operate on the high limit control. This condition is responsible not only for the complaint of insufficient heat, but also for an increase in the rate of heat exchanger deterioration.

Scale Is Removed

In such situations, the serviceman first attempts to remove the scale which blocks the passage of air over the exterior of the heat exchanger. He uses a portable vacuum cleaner for this operation. He also removes as much scale as possible from inside the heat exchanger by inserting the

vacuum cleaner hose through inspection doors.

Occasionally, because of furnace construction or other obstacles, the heat exchanger cannot be cleaned in its installed location. The serviceman then removes the heat exchanger, and in some cases the complete furnace. If the entire furnace must be moved, it is usually taken to the company's shop for a complete overhaul. This work usually requires two men to handle the equipment, loosen the scale and remove it with a vacuum cleaner.

Shop Overhaul Is Complete

In the shop, the casing and the burner are removed so the mechanics can concentrate on the combustion and heat exchanger sections. To remove scale from the interior of these two sections, the vacuum cleaner nozzle is placed in one of the inspection openings and shoved as far as possible into the section being cleaned. Meanwhile, a second mechanic taps the sides of the heat exchanger with a hammer to loosen the scale which is almost separated from the metal.

Manhandling Extracts Scale

In some cases, because of the construction of the heat exchanger, it is impossible by this method to remove all the scale which has formed. Therefore, the heat exchanger must be rolled over and over to work the scale from the various passages of the heat exchanger to a central point where the vacuum cleaner can pick it up. To help loosen and move the scale, an air hose with a high velocity jet is inserted as far as possible into the heat exchanger and the scale is blown toward the areas where it can be reached with the vacuum cleaner hose. Approximately 120 lb pressure is applied for this purpose. Scale which forms during the summer and pops off at the beginning of the heating season is difficult to remove with a vacuum cleaner — the company has found slivers 3 and 4 in. long, $\frac{3}{8}$ to 1 in. wide which have dropped off after the fall startup of the furnace.

Frequently, enough scale is removed from a furnace to fill half of a two gallon bucket.

Following the cleaning process, the heat exchanger is given a complete inspection by the servicemen. If pinpoint holes or ruptures are found, the service manager is consulted to determine whether repair is practical or the furnace should be replaced.

If he decides the furnace should be replaced, a photograph is taken of the heat exchanger to be used both as a record of its condition and as a sales aid.

Data Studied Carefully

This photograph, a load estimating sheet and manufacturers' literature on the latest equipment are assembled by Mr. Kuykendall who uses them in his visit with the prospect to emphasize his recommendation that the furnace be replaced with one of proper design and capacity to meet the requirements. This approach has been found very effective. Prior to contacting the customer, Mr. Kuykendall and Mr. Nisbet review the causes for deterioration of the heat exchanger and discuss how to make sure such conditions don't occur in installations made by their company.

Seek Short Smoke Pipe Run

When replacement is called for, the new furnace is relocated as closely as possible to the chimney flue to permit using a short smoke pipe with as high a pitch as can be obtained. The smoke pipe is replaced whether the furnace is replaced or repaired. If the furnace must be placed far from the chimney opening, the installers make every effort to provide as sharp a pitch as is practical. In cases where the pitch cannot be as great as desired, the installers use one size larger smoke pipe and if, for example, a 7 in. smoke pipe is replaced by an 8 in. pipe, a tapered fitting about 8 in. long is installed between the 7 in. furnace collar and the larger smoke pipe. This has proved very effective in helping to move combustion gases away from the combustion chamber to the chimney.

Booster Sometimes Required

If the mechanic is forced to install a horizontal smoke pipe because of insufficient head room or improperly located chimney opening, he installs a mechanical draft booster to produce the proper draft. The next largest size smoke pipe is always used if the run to the chimney opening is over 15 ft.

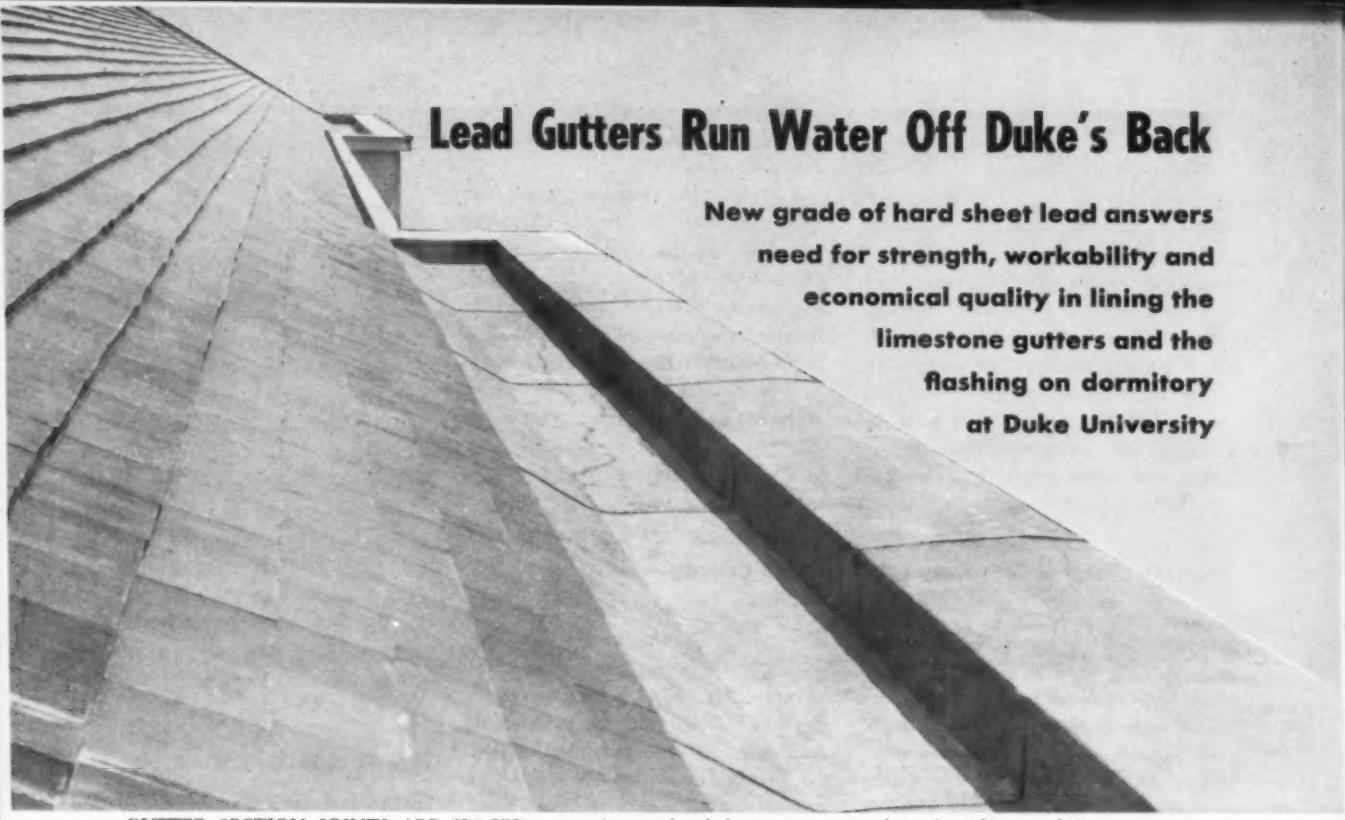
Before installing a new smoke pipe, the mechanic searches the chimney opening for obstructions such as fallen bricks, birds' nests, etc. that may have fallen into the flue gas passage from the top of the chimney. When the new furnace is in place, the fuel burner is adjusted for 0.04 draft at the furnace collar and for a no. 2 smoke. Finally, a combustion and efficiency test is performed. A record of this test is placed in the job file.

Overhaul Is Day's Work

The cost for a complete overhaul when the furnace is removed to the shop is between \$75 and \$100. It usually takes two men one day to accomplish this work. Most of their time of course is spent in removing the furnace which often requires dismantling several duct sections. A complete overhaul includes not only a thorough cleaning of the combustion chamber and heat exchanger, but also a complete inspection of the controls for operating effectiveness and the necessary adjustments. Air filters are replaced or cleaned and the fuel burner is cleaned and worn parts are replaced.

The charge for cleaning a furnace on the premises is usually about \$15.

This reputation for doing a complete overhaul job and providing top efficiency and comfort for home owners has brought in many replacement jobs, in which horizontal furnaces were substituted for floor units. This, of course, permits the company to draw on past experience to engineer and lay out complete heating systems which provide adequate comfort in every room. The engineers carefully avoid undersizing return openings because they have proved that insufficient air in motion through the house can increase operating costs.



Lead Gutters Run Water Off Duke's Back

**New grade of hard sheet lead answers
need for strength, workability and
economical quality in lining the
limestone gutters and the
flashing on dormitory
at Duke University**

GUTTER SECTION JOINTS ARE SPACED at maximum of 8 ft between seams and on the side toward the conductor pipe openings

"Hard sheet lead is a development of modern metallurgy made from an alloy with 6 to 7.5 percent antimony. Because it is stronger than soft lead, lighter gage sheets can be used. Its corrosive resistance is equal to that of soft sheet lead."

HARD SHEET LEAD has been used for lining more than 600 ft of limestone gutters on a new dormitory at Duke University at Durham, N. C. A new grade of hard lead sheet was used for the gutters and at other points on the roof where flashing was required. The sheet weighs 3 lb per sq ft.

Hard sheet lead is a development of modern metallurgy, made from an alloy with 6 to 7.5 percent antimony. Because it is stronger than soft lead, lighter gage sheets can be used. Its corrosive resistance is equal to that of soft sheet lead.

Cost Is Competitive

The gutters and flashing were installed by Pickard Roofing Co. Inc., Durham. James Pickard, president of the company, estimates that 2816 sq ft (8448 lb) of the 3 lb hard lead was required for the gutter lining alone and that the total cost proved competitive with other high quality materials.

Formed Sheets Hoisted to Roof

Gutter linings installed in this job vary in width from 3 to 7 ft. The lead sheets were formed on the ground and hoisted into position on the roof. Fig. 1 is a detailed drawing which shows the shape of the gutter and illustrates how it was secured to the masonry.

The outer edge of the gutter was fastened to the lime-



ERCTION WORK is scheduled by James E. Pickard (left) and Joseph T. Pickard



SHEET LEAD WAS USED for gutters at roof ledge and for circular edge of sun deck as well as for sheathing ventilation dormers in attic

stone fascia with a nailed copper cleat. A hard lead strip imbedded in the brick mortar of the vertical section of the gutter provided a locking strip for the inner edge.

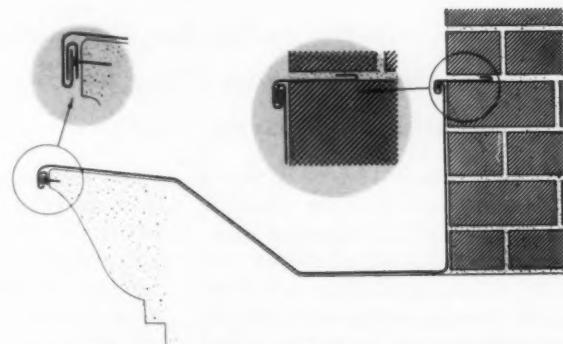
Three-Layer Caulking Keeps Moisture Out

Loose-locked cross seams, made in the direction of water flow, were filled with a non-hardening compound to provide a watertight joint. The joints were caulked between the bottom side of the seam and the bent-in edge of the top sheet, between the two bent-in edges, and between the top side of the seam and the edge of the bottom sheet. This three layer caulking was accomplished by filling each seam with compound before the insertion was made and the seam was bent into its permanent position. Each seam was finished by malleting and grooving with a hand groover. Solder was used only where conductor pipes and scuppers were connected.

Soft Base Reduces Chaffing

To absorb stress pressures, seams were located at 8 ft or shorter intervals. A 1 1/4 in. flat lock was used at the cross seam. A layer of felt and pitch was provided as a base for the gutters to minimize underside chaffing due to expansion and contraction. All locks were made by hand with the aid of roofers' tongs.

Flashing at dormers, chimneys and other openings in



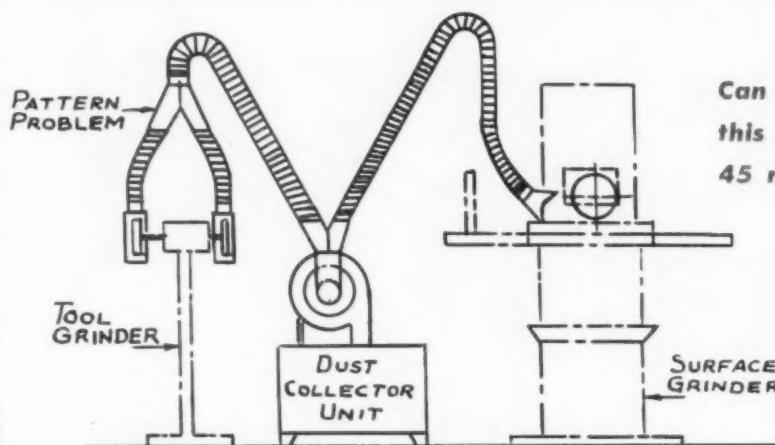
1 SECURE LOCK of sheet lead is very important at outer edge of stone parapet and at masonry wall

the roof were set 8 in. under the tile and held in place by standard copper cleats.

Dormers Serve Two Purposes

Dormers were designed to serve two purposes. Some provide gravity ventilation for the attic space; others serve as fresh air intakes for the forced air ventilating systems. Each dormer was sheathed with lead coated copper to harmonize with the hard lead employed in the gutters and flashing.

HUGH REID'S SHEET METAL PATTERN



1 PATTERN PROBLEM is incorporated into dust collection system for tool grinder and surface grinder

Can you develop
this pattern in
45 minutes?



Here's a new and accurate approach to the development of sheet metal patterns that will cut costly layout time. The method applied to this month's fitting can be used as a guide to develop related patterns and solve other problems encountered at the layout bench.

Use Simplified Method For Two Way Wye Branch

... via the radial line development of a pattern for a common fitting which can be laid out on an average layout bench

A DUST COLLECTION SYSTEM for a tool grinder and a surface grinder is shown in Fig. 1. Engineering calculations for this job established that 225 cfm was required for each of the three grinding wheels and a velocity of 4500 fpm was needed to convey the dust from the grinders to the dust collector. The round duct sizes are determined by dividing the volume by the velocity; thus, 225 cfm divided by 4500 fpm equals 0.05 sq ft, which is equal to a 3 in. diameter round duct. In figuring the large duct diameter for the wye branch equal to two 3 in. round ducts, multiply 0.05 sq ft by 2, which equals 0.10 sq ft. This is equal to a 4½ in. diameter round duct. The requirements for the dust collector would be specified at 675 cfm at a calculated static pressure which would determine the mo-

tor hp and the pulley and belt sizes.

In analyzing the simplified method for the pattern layout the radial line method is generally accepted as less time consuming than the triangulation method. A wye branch of this size can be readily laid out within the limits of the average layout bench. This method would not be practical on a large wye as the intersection point R (Fig. 3) would be at too great a distance for the average trammel length used in practical shop layout.

Given the front and end views of a two way wye branch, the following is a step-by-step simplified layout procedure by the radial line method.

Half Front View, Fig. 3 —

- Draw the 1½ in. horizontal

line 1-7. From point 7 measure ¾ in. to the right and establish the point O. Through this point draw a line perpendicular to line 1-7. Label this line CL (center line).

b) From line 1-7, measure up 1½ in. and draw a horizontal line parallel to line 1-7 and intersecting the center line at point X. Working from point X measure ¼ in. and ¾ in. to the right and mark the points A and G. Draw a line from point 7 to point G. A and a line from point 1 to point G.

c) Extend the lines 7A and 1-G to intersect. Label the intersection as point R. Extend lines AG and 7-1 to the right and draw a perpendicular line from these two lines to intersect the extended line 7A at point R. Identify the intersections of this vertical line with horizontal line 7-1 as point R'.

d) With point O as center and radius ¾ in., draw a half circle below line 7-1. Divide this half circle into six equal spaces and mark the points 2, 3, 4, 5 and 6. From point R', draw

TEAR OUT THESE PAGES AND FILE THEM FOR FUTURE REFERENCE

lines to points 5 and 6. Where these lines intersect the center line, establish the intersection points 11 and 12.

e) With point R' as center and radius $R'2$, draw an arc to intersect line 1-7. Mark the point $2'$ and draw the line $R-2'$. Mark the intersection point of this line and line AG with the letter F. With $R'3$ as radius and point R' as center, draw an arc to intersect line 1-7. Label this point $3'$ and draw the line $R-3'$. Mark the intersection of this line and line AG with the letter E.

f) Set a compass at radius $R'4$ and with point R' as center draw an arc to intersect line 1-7. Mark the point $4'$. Draw the line $R-4'$ and identify the intersection of this line and line AG with the letter E.

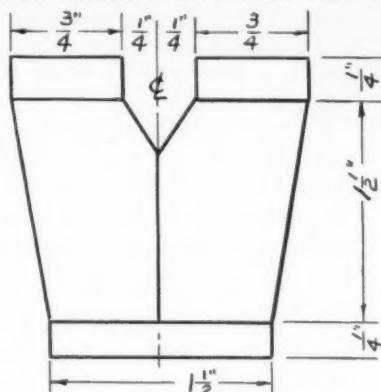
g) With point R' as center and radius $R'5$, draw an arc to intersect line 1-7. Mark the point $5'$, draw the line $R-5'$ and mark the intersection point of this line on AG with the letter C. With $R'6$ as radius and point R' as center, draw an arc to intersect line 1-7. Label the point $6'$. Draw the line $R-6'$ and mark the intersection of this line on line AG as B.

h) With R' as center and radius $R'11$ draw an arc to intersect line 1-7 and from the intersection point draw a line perpendicular to line 1-7 to intersect line $R-5'$. Mark the point 8. With R' as center and radius $R'12$ draw an arc to intersect line 1-7. From this point draw a line perpendicular to line 1-7 to intersect line $R-6'$. Mark the point 9. The intersection of the center line and line 7A is labeled point 10.

Pattern for One Leg, Fig. 4 —

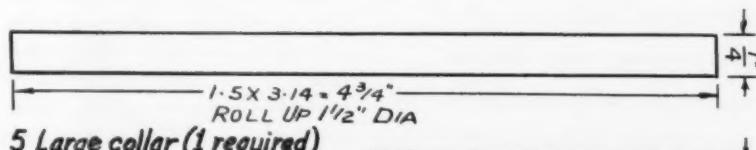
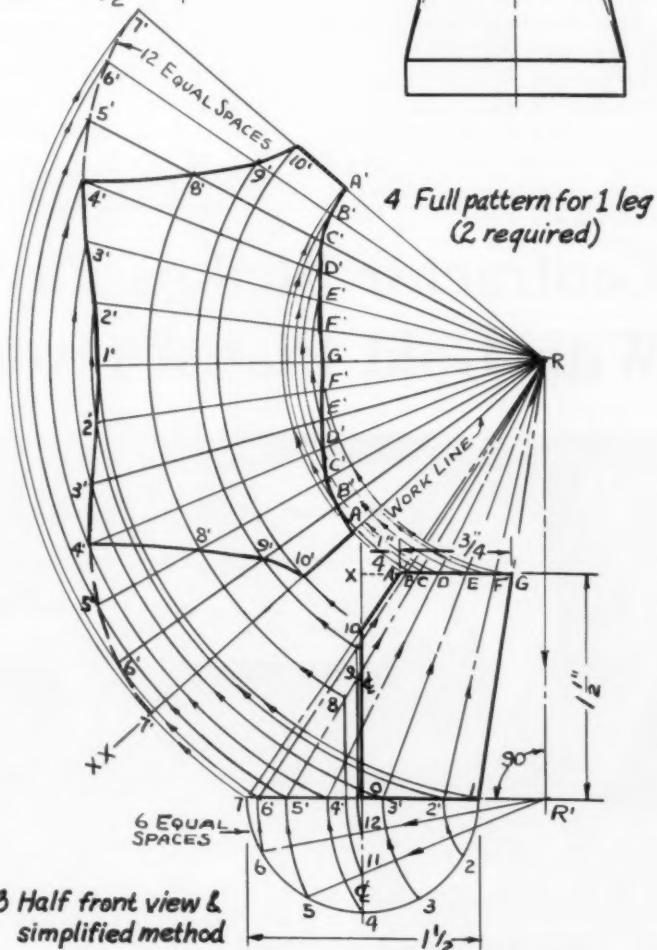
a) Draw the work line $R-XX$. With point R (Fig. 3) as center and radii $R1$, $R2'$, $R3'$, $R4'$, $R5'$, $R6'$ and $R7$ (Fig. 3), draw long arcs to the left of work line $R-XX$.

b) Label the intersection point of arc $R7$ and the work line as point $7'$. Set a compass at the equal space arc 1-2 on the half circle (Fig. 3) and with point $7'$ (Fig. 4) as center, cut the arc on the radius line drawn from line $R-6'$ (Fig. 3). Where this arc intersects the radius line, establish point $6'$. With point $6'$ as center and

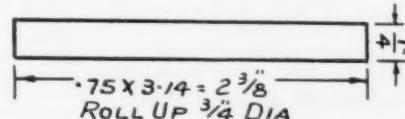


2A Front view

2B End view



5 Large collar (1 required)



6 Small collar (1 required)

NOTE: ALL DRAWINGS have been reduced 15 percent in size

equal space 1-2 on the half circle (Fig. 3) cut the arc on the radius line drawn from line R-5' (Fig. 3). Where this arc intersects the radius line, establish point 5'. Follow the same procedure for establishing points 4', 3', 2' and 1' and continue to establish points for the other side of the half circle. These points 2', 3', 4', 5', 6' and 7' are established on their respective radii from Fig. 3 and are shown in the completed drawing for Fig. 4. From these points draw lines to point R.

c) With point R (Fig. 3) as center and radius R-10, draw an arc to intersect lines R-7' (Fig. 4). Label the points 10'. With point R as center and radius R9, draw an arc to intersect lines R-6' (Fig. 4). Mark the

points as 9'. With point R as center and radius R-8 draw an arc to intersect lines R-5' (Fig. 4). Mark the points 8'.

d) With point R as center and radius RA (Fig. 3) draw an arc to intersect lines R-7' (Fig. 4). Identify the points as A'. With RB (Fig. 3) as radius, draw an arc to intersect lines R-6' (Fig. 4). Establish the points B'. With line RC (Fig. 3) as radius draw an arc to intersect line R-5' (Fig. 4). Mark the points C'. With point R as center and radius RD draw arcs to intersect lines R-4' (Fig. 4). Label the points D'. With point R as center and radius RE (Fig. 3) draw arcs to intersect lines R-3' (Fig. 4). Mark the points E'. With RF (Fig. 3) as radius draw an

arc to intersect lines R-2' (Fig. 4). Mark the points F'. With point R as center and radius RG, draw an arc to intersect line R-1' (Fig. 4). Label the point G'.

e) Through the developed points draw the pattern outline.

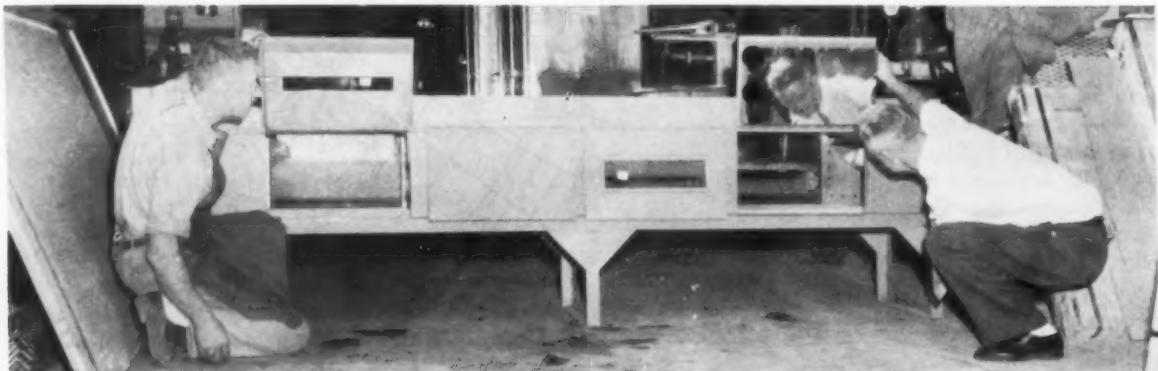
Collar Patterns, Figs. 5 and 6 —

a) To calculate the circumference of the large and small collars, multiply the given diameters by the constant 3.14. Thus, $3.14 \times 0.75 = 2\frac{3}{8}$ in., and $3.14 \times 1.5 = 4\frac{3}{4}$ in.

b) Draw a rectangle $2\frac{3}{8}$ in. $\times \frac{1}{4}$ in. and a rectangle $4\frac{3}{4}$ in. $\times \frac{1}{4}$ in.

Mark all patterns for fabrication and indicate the number of each required.

Contractor Strikes Pay Dirt With Gold Plated Ovens :



GOLD PLATED INTERIOR of processing oven is inspected by Doug Winning, whose reflection can be seen in the opened door—indicating the high degree of reflectivity of gold plated panels

... for the entirely practical purpose of processing foil sheets under closely controlled conditions (the gold plated panels are installed inside the ovens)

THE MANY NEW PRODUCTS being developed for modern markets owe their existence to equally new equipment which must be designed to meet rigid and complicated processing requirements. The responsibility for development of such equipment was assigned to Douglas Winning, Winning Sheet Metal Mfg. Co., Cleveland, who was asked to design a gold plated oven that would give absolute reflective and radiation control over

an 18 in. wide continuous sheet of foil being prepared for use in a highly sensitive application. The five ovens are in two different widths and capacities.

The gold plating is five millionths of an inch thick. It is applied over a nickel-copper base by an electro-plating process. This highly skilled work was done by a firm which specializes in this type of gold plating. All fabrication was by the Winning firm.

Plating is restricted to inside surfaces of the sides, ends and top. The exposed internal bottom of the oven consists of a $\frac{1}{4}$ in. sheet of asbestos-cement material attached to a 12 ga black iron bed placed directly beneath the foil strip being processed. The exposed internal portions of the bed sheet were painted with a heat resisting enamel.

Quartz heating elements in the top of the oven maintain the temperature of the oven air at 400 F. Due to the heat of the elements, forced ventilation must be provided to prevent stratification of the air within the oven. This is accomplished by introducing outside air at 200 fpm to pass

above the quartz heating elements. This air, after passing over each heating element in series, enters the oven and flows from the point at which the foil leaves the oven toward the foil's point of entry. Here the air enters an exhaust duct system.

Trim Plating Sheet

The first step in fabricating the ovens is trimming the no. 3 cold rolled steel sheet to be used for gold plating. These sheets are trimmed to exact dimensions and sent to the electroplating firm. Each of these panels is designed to encase the entire inner surface except the bed of the oven.



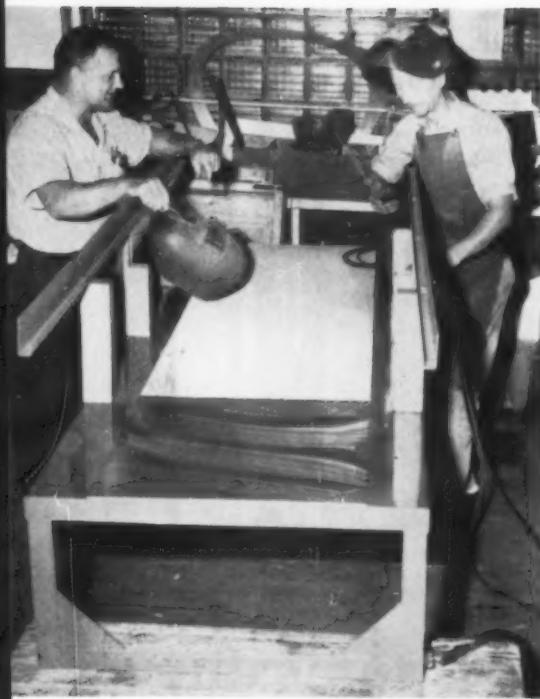
HEATING ELEMENT contains gold plated arched hood over quartz unit and an air channel which passes above the heating element panel. Heating elements were made to fit closely together so cooling air can pass in series from one element to another. Panels are held in place by flanges on each end



JOURNEYMAN INSPECTS LAMP fixture for locating lamp rail flange which will hold the heating element fixture in place without permanent fastening so burned out elements can be quickly removed and replaced

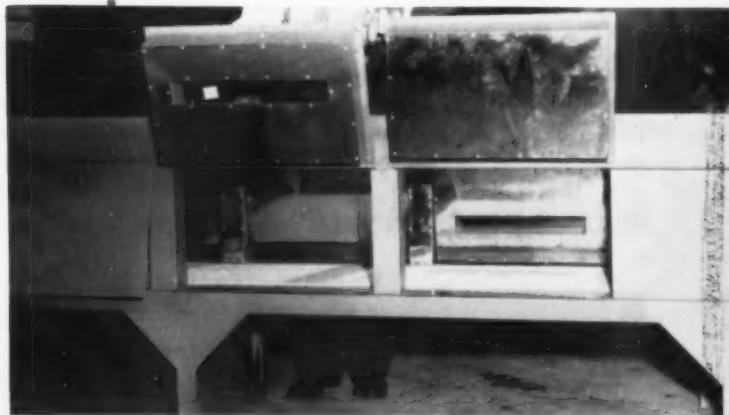


LAST STAGE INSPECTION of nearly completed oven is performed by Doug Winning (right) and journeyman Cliffe Kelsey, who fabricated the ovens



LOCATING AND WELDING OF STILES call for a conference between Charlie Rader (left) and journeyman Cliffe Kelsey

INTERIOR VIEW of gold plated ovens shows inspection doors and inspection slots, which are in alternate doors on each side. Inspection slots are slanted to afford clear view of each side of the foil sheet being processed



This includes the quartz heating element fixture, above which is a gold plated, arched shield.

Oven Frame Is Made

After the panels are ready for gold plating, the next step is the fabrication of the oven frame. The 18 in. oven (classified according to the size of the foil strips to be processed) is 7 ft. 9 in. long, 30 in. wide and 24 in. high, excluding the angle iron legs. The oven's base sheet is 12 ga black iron welded to $2 \times 2 \times 3/16$ in. angle iron legs which are joined at the bottom for additional support. To increase rigidity, 12 ga russets are fastened at each corner of the base. To the bed plate are fastened stiles of 20 ga black iron. Fastened to the top side of these stiles are 12 ga rails. The rails are used not only for the top corners but also to support the quartz heating element fixtures.

Stiles, Rails Welded

When the stiles and frame rails are in place, they are welded to their permanent location. Fastening of the

asbestos-cement insulating sheet to the bed plate is next. Then interior and exterior panels and doors are installed. Each side of the oven has four doors, two of which contain inspection windows. The inspection windows are not opposite each other on each side, but are staggered so that the processing operation can be inspected from either side and at any point within the oven.

Inspection Slots Are Slanted

The inspection slots in the doors are covered with $1/4$ in. heat-tempered glass which can withstand the temperatures maintained in the oven. The glass is held in place with sheet metal frames fabricated for this purpose. The inspection slots are slanted because of the 4 in. space between the internal and external surfaces of the oven wall. When an inspector looks into the oven he can see both sides of the foil sheet. Doors are held in position by piano type hinges and are held closed by a latch and handle combination similar to that found on certain types of commercial refrigerator doors. When the door is pushed closed and the handle is

turned counter-clockwise, the hasp holds the door tightly shut.

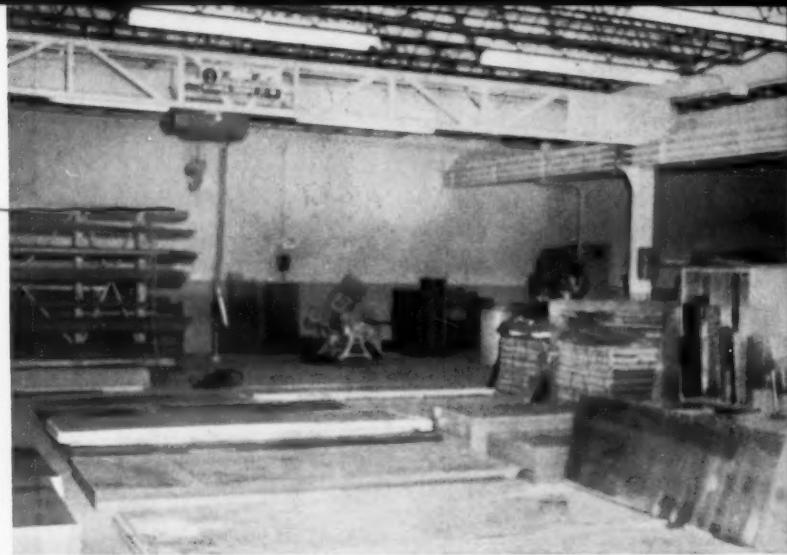
The exterior of the oven is painted with an acid resisting gray enamel.

Gold-plated panels are held in position by no. 6 stainless steel sheet metal screws. All other fastening throughout the ovens is done by electric arc welding.

Outside Air Forced Through

Air circulated over the heating element and distributed evenly throughout the oven is brought in from the outside by a blower system. All air is passed through a filter bank, then directed into the air channels that pass above the quartz heating element. From the last heating element, the air enters the oven through an elbow with an adjustable snout that permits the air to be directed either forcefully or mildly against the foil sheet being processed. After being discharged into the oven, the air continues through the oven to a point where it enters the exhaust duct. The air quantity is determined by a set of manually adjusted dampers in the fitting which joins the oven and the exhaust duct.

Work *Flows* Through Planned Shop



THREE TON CRANE SERVING ENTIRE LENGTH of building over a 35 ft span cuts time in loading and unloading sheets and aids in handling of large pieces of fabricated equipment

... featuring ample work space, mobile machines, scrap disposal systems and other factors which point toward overall efficiency

"A GROWING BUSINESS needs more room. That's why I decided to build a new and larger sheet metal shop, provide offices for our estimators and engineers and furnish adequate parking facilities for office and shop personnel," says Art Franck, Franck & Fric, Inc., Cleveland.

The new 18,000 sq ft building is

in a suburb about seven miles from downtown Cleveland. This location was selected instead of one closer to the city as the result of considerable investigation by the company's officers. Contributing to the decision were cost of property, tax rates, convenience to a growing network of express roads leading into the heart

of the city and the rapid growth of the industrial area around the city's fringe.

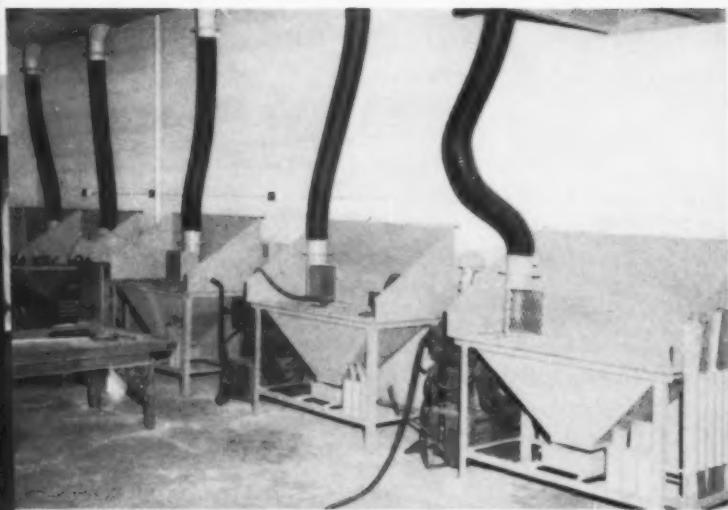
The recognized need for adequate working room around all equipment was a primary factor considered in determining the size of the new shop. About \$40,000 worth of additional tools and equipment have been purchased to date; another \$10,000 was set aside for purchase of additional duplicate tools now being considered. In deciding what equipment was needed and what models were best suited to the shop's need, Mr. Franck and his staff studied tool manufacturers' catalogs and interviewed manufacturers' representatives extensively before placing an order. Among the points considered before making a selection were: 1) equipment capacity *vs* job application (present and future); 2) ability to perform multiple operations with a minimum of changing of dies and readjustment; 3) accuracy of work turned out; 4) time and labor saving features.



MODERN OFFICE PROVIDES SPACE for Art Franck, owner of the company, to hold meetings and inspect blueprints, etc. Clock on wall was presented by employees in appreciation for many improved working conditions in shop and office

Office Is Air Conditioned

In designing the new building about 20 percent of the 18,000 sq ft



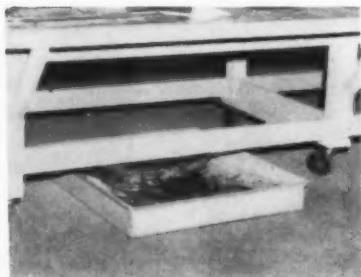
A BANK OF WELDING BOOTHS provides adequate working area and permits suitable ventilation for welding operations



PORTRAIT WELDING TABLE accommodates odd-size welding jobs. Note exhaust opening for portable welding operations has adjustable collar which permits turning inlet to any position



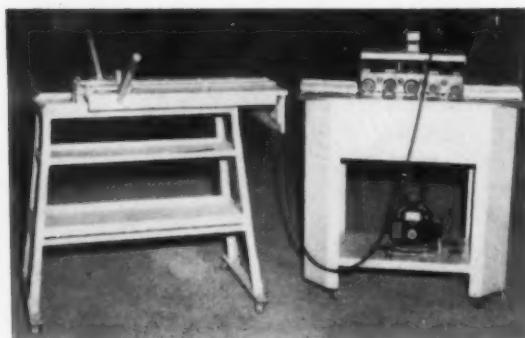
INDIVIDUALLY SHEARED SHEET SECTIONS for specific job are neatly arranged on portable table for moving to fabricating bench. This order is checked by Bob Smith, shop foreman



SHOP FLOOR is kept tidy by use of scrap box located under each bench



SMALL HAND TOOLS needed for individual jobs are assembled in clusters at several points near benches, to prevent cluttering up work benches with idle tools



LIGHT GAGE TOOLS are placed on casters and moved to work bench so mechanics can fabricate most work at same bench

area was set aside for the office section. This area is air conditioned with two 5 ton absorption type air conditioning units. Each unit uses water cooled condensers and the water is circulated to twin cooling towers on the roof of the building. To provide water for this purpose and for other uses within the building, a 300 ft well was drilled.

Office Space Is Functional

The office area is divided into a reception room where the company stenographer's desk is located, and several private offices on each side of the attractive reception hall. Each private office is adequately sized to meet the needs of the individual occupying it. Several are set aside for drafting and estimating. The separate conference room contains a refrigerator, stove, sink and other facilities for providing refreshments during meetings.

Design for Free Work Flow

The shop area of the building was carefully designed to provide a free flow of work from each tool to work benches and assembly areas. Before the final layout was made, all shop employees were asked to submit ideas which might improve the final layout. One employee's suggestion led to the construction of portable work tables 10 ft long, 4 ft wide and 33 in. high, mounted on 6 in. casters. The benches are made of hardwood and cost approximately \$300 each.

Crane Reaches All Positions

To facilitate loading and unloading of supplies and completed work, a three ton crane was mounted on a movable beam spanning 35 ft between its rails. The crane moves along this beam to almost any position between the two rails, which run the length of the building.

When pallets of sheets are delivered at one of the two truck entrances, the crane removes the pallets and places them in the stocking area. Carried in stock are about 150 tons of galvanized sheets plus additional

quantities of stainless steel, aluminum and copper sheets in various gauges.

A one ton crane is used near the welding area, primarily for hoisting and moving heavy fabricated parts to shipping points and processing stations.

Five Welding Positions

The welding area consists of five stationary welding positions, each with its own supply of welding rods and a flexible hose attached to an 8 × 10 in. hood protected by an expanded metal grille. These flexible connections are attached to a common exhaust system containing a material-handling fan and assembly. A sixth connection from this exhaust system is located at a 6 × 8 ft portable welding table which is 28 in. high. This table, designed to hold bulky equipment, can be rotated as the welding process progresses.

Scrap Drops into Pans

Each of the five welding benches, fabricated by employees, has a grille type work surface of 3/16 × 1 in. black iron bar stock. The bars are set on edge with a 1 in. opening between each bar. A 3/16 × 1 in. brace is set between each vertical bar every 4 in. This forms a grate-like appearance for the bench top. Particles and scrap formed during the welding process fall through the grille into a chute that tapers to a 10 × 12 in. opening at the bottom, directly above a pan of the same dimensions which is emptied periodically. This arrangement keeps the welder's bench clean at all times.

Tools Moved To Work

The flow of work through the shop begins at the shear where sheets are trimmed to their prescribed dimensions and placed on a portable table in the quantities required. The table is pushed to a stationary work bench where the patterns are laid out and the fabricating process is begun. To facilitate the fabricating techniques smaller tools such as lock formers,

open end flanges, etc., are mounted on benches containing casters so they can be moved directly to the work bench. Other hand tools required in the fabrication of fittings are placed on stationary benches in clusters. One such table includes a light gage slip roll former, a bar folder and a ring and circle shear. Another clustered hand tool bench contains groovers, bench shears, anvils, vises, beaters, etc.

Other features of the shop are the excellent fluorescent lighting arrangement and the availability of numerous scrap receptacles. A 4 × 4 ft × 5 in. deep, 20 ga pan is provided beneath each work bench.

Work Flow Uninterrupted

Automatic machines for handling angle iron bars, channels, etc. are located in one corner at the far end of the shop where they can be operated without interfering with the normal flow of work from the shear to the end of the production line.

The shop has its own 10 ft paint booth with an individual exhaust system. During painting operations, the air entering the booth carries excess paint to a bank of filters which extract paint particles before they enter the exhaust system.

Ladders and scaffolding stored outside the building are protected by narrow lean-tos which are attached to the building. These lean-tos have metal roofs and flashing where they touch the masonry walls.

Three Furnaces Heat Shop

The shop is heated by two direct-fired horizontal furnaces which discharge heated air directly into the shop area, and a highboy furnace in an 18 × 10 ft machinery room which also includes the two summer air conditioning units serving the office. A duct system feeds outlets in the work area.

One month after the company had moved into its new plant it held open house. The 300 guests were conducted through the building and shown all points of stepped-up efficiency.

PRACTICAL APPLICATIONS
for engineering, installing and servicing
residential cooling systems



How to Charge a Refrigeration System

Air conditioning dealer-contractors should review these recommended charging procedures periodically with their servicemen to avoid the development of short cut methods which can be the cause of poor performance

By S. W. Reid
Air Conditioning Engineer
Gilbert Associates, Inc.

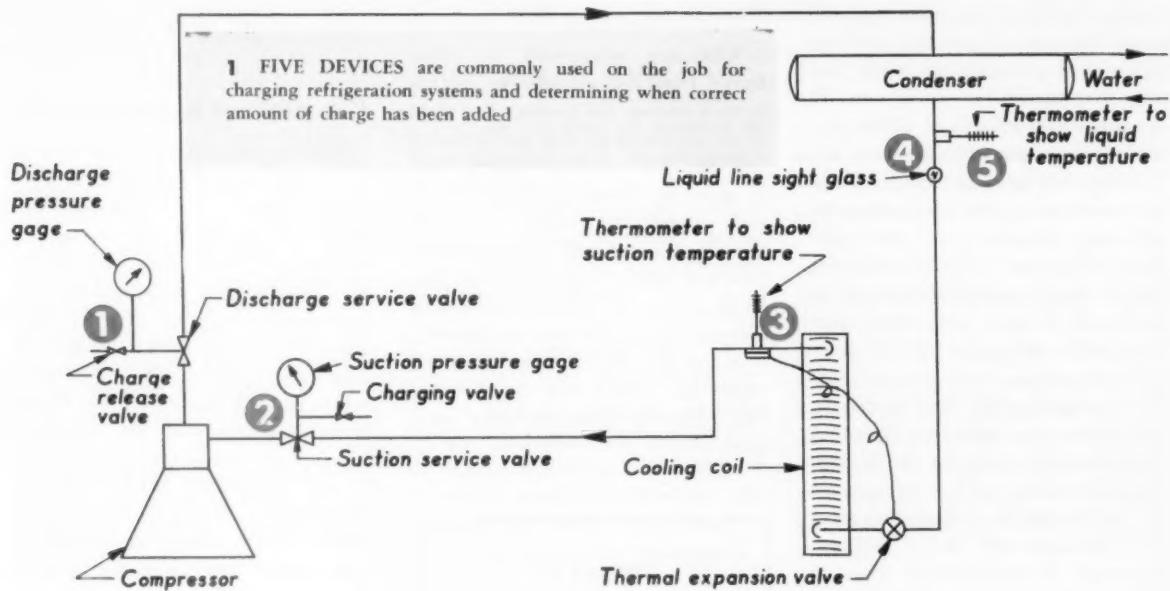
EARLY THIS SEASON a refrigeration service company was engaged to move an old $\frac{3}{4}$ hp window air conditioner from an attic, where it had been stored for several years, to an office. The unit was of post war vintage, but it contained a belt driven compressor with a shaft seal, and it had been stored without having been pumped down.

The air conditioner was given a routine checkup which included installation of a new air filter, belt adjustment, lubrication and cleaning. To check its operation at the new

location the serviceman installed a gage on the suction service valve of the compressor. He had difficulty in removing the gage plug in the discharge service valve and after several attempts, gave up. Assuming the system would need more refrigerant after so long a time in storage, he connected a refrigerant cylinder to the suction side of the compressor.

Circuit Breaker Trips

The mechanic started the unit and ran it about 15 minutes. Although



the suction pressure was normal, he added a small amount of refrigerant. He then observed operation for a short period and added more refrigerant. This was repeated three or four times over a period of about an hour. Suddenly, the entire unit stopped after apparently performing nicely for well over an hour. He found a circuit breaker had tripped and reset it. After a short period of operation, the device tripped a second time. In checking for possible electrical failure which might be causing the trip, the serviceman noticed that the air cooled condenser of the unit was very hot — considerably hotter than it had been earlier. Still puzzled, he called in his shop foreman and learned the true cause of his difficulty.

Lack of Training Shows Up

This situation calls for a review of facts. First of all, the young man who was sent to do the job was not as well grounded in charging procedures as he should have been. He had a lot of experience installing window units and making minor adjustments on them, but because modern sealed systems seldom are opened for charging except in the shop, he had but little training in this phase of service work.

Watches for Sweating

Why did the serviceman add refrigerant and what measure did he use to judge when the system had enough? Questioning brought out that he was keeping his eye on the suction line where it left the cooling coil. The line at this point was uninsulated. He proposed to add refrigerant until this part of the line was "sweating" or condensing water vapor from the air as was the cooling coil. Since the refrigerant was metered by a thermal expansion valve, this portion of the suction line never did "sweat." The system became overcharged and the excess refrigerant accumulated in the condenser. This caused the rise in condensing pressure which overloaded the compressor motor until the circuit breaker tripped.

After receiving proper instructions from his foreman, the serviceman installed the discharge gage he should have put on in the first place. He then released refrigerant from the high side of the system, slowly and in steps until the discharge pressure dropped to its normal reading.

Review Procedures Constantly

This actual case is recounted because it emphasizes the need for the

proper all-around training of servicemen. Constant review of basic procedures should be a part of every shop schedule so servicemen will not forget some of their skills because of lack of opportunity to practice them.

Let's review some of the things we should remember about refrigerants and how to handle them. The modern dealer-contractor who does small commercial and residential air conditioning work is largely concerned with only two refrigerants which are identified by several different trade names, depending upon the manufacturer. Both, however, are halogenated hydrocarbons and their trade names are followed by the numbers 12 or 22. Both are characterized by their low toxicity and non-burning, non-explosive qualities. Either can be handled safely provided care is taken to keep them from skin and eyes.

Characteristics Are Desirable

In addition to the safety factor, refrigerants 12 and 22 have desirable thermodynamic characteristics. Although we need not go into these characteristics in detail, we should note several facts to be kept in mind. First, the refrigerants are not interchangeable in a given system. Operating pressures of refrigerant 22 will be considerably higher than those of

refrigerant 12 for the same temperatures. Thus, for evaporating and condensing temperatures of 46 F and 106 F respectively, refrigerant 12 pressures are 42.65 and 128.1 psig while refrigerant 22 pressures are 78.18 and 216.0 psig. For the same air conditioning tonnage, a compressor using refrigerant 12 must have about 50 percent more displacement than it would need if refrigerant 22 were used. A given compressor operating with refrigerant 12 will have 40 to 50 percent more capacity when using refrigerant 22. In a given system neither the motor nor the other components are designed for this additional capacity. The refrigerants are chosen by the manufacturers of the equipment and used to the best advantage in establishing lines of equipment to cover ranges of capacities. Refrigerant substitution should never be made in any system without the approval of the equipment manufacturer.

Mark Cylinders Carefully

Refrigerant is usually purchased in large drums holding perhaps 150 lbs or more. From the drums it is transferred to smaller 10 to 25 lb cylinders which servicemen carry with them. These must be well marked and always used for the same refrigerant. A shop may find it convenient to keep special cylinders to store refrigerant which has been removed from systems being serviced. This used refrigerant of course contains oil and dirt and should not be mixed with new refrigerant.

Is Safe Weight Indicated?

Refrigerant in a cylinder is often referred to as a "bottle of gas". Actually, the cylinder contains both liquid and vapor even when full, since some space must always be left for liquid expansion due to temperature. The maximum safe weight for the contents of a cylinder should be plainly marked on the outside. Pressure is a function of cylinder temperature and is not an indication of the amount of refrigerant the cylinder contains.

Blow Out Transfer Line

Whenever refrigerant is transferred from one cylinder to another or to a system, the transfer line must be blown out so air will not be forced into the new vessel or system. This is done by allowing refrigerant to pass from the supply cylinder through the line and leak out at the flare nut which connects the far end of the line to a valve on the second cylinder or on the system. After a short purge, the nut is tightened while the refrigerant is flowing. The charging operation may then proceed.

What Is 'Air Conditioning'?

True air conditioning provides comfort in all seasons of the year, according to the American Society of Heating and Air-Conditioning Engineers. The ASHAE defines air conditioning as follows:

"Air conditioning is the process of treating air so as to control simultaneously its temperature, humidity, cleanliness and distribution to meet the requirements of the conditioned space."

Refrigerant is the life blood of a mechanical cooling system. The finest components and the most careful assembly are useless without this vital fluid. Not only the proper type but also the proper amount of refrigerant must be used in a given system.

Many Reasons for Charging

A serviceman may be called on to charge a refrigeration system for several reasons. He may have to charge a brand new system for the first time. He may have to replenish the charge in a system which has developed a leak. Or he may have to charge a system from which the

original charge had to be released to repair or replace a component.

Circumstances Dictate Method

The circumstances which contribute to the need for charging will, of course, dictate the procedure followed in preparing the system for charging. A new system, for instance, would have been pressure-tested for leaks with a mixture of refrigerant and dry inert gas such as carbon dioxide or nitrogen. The refrigerant serves as an indicator for the halide torch. Recommended test pressures for various refrigerants are given in a code (ASA B9.1 Safety Code for Mechanical Refrigeration) published by the American Standards Association. After pressure testing, the system would be purged down to atmospheric pressure and then evacuated with a vacuum pump. The same procedure would be followed for a system that had been opened to repair or replace a component.

Is Evacuation Required?

For the system which has lost only part of its charge, the testing and evacuating procedures are not necessary, providing the leak can be located and sealed without breaking into the system. In this case it is necessary only to replace the amount of refrigerant that has been lost. Any refrigeration system operating with refrigerants 12 or 22 which has not been opened to admit air and which, when the compressor is not running, shows pressures above atmospheric, may be safely recharged without evacuation. Such a system should not be left, however, until the reason for the low charge has been discovered and proper measures taken to prevent further loss.

Charge System on Suction Side

The proper place to add a charge to a refrigeration system is on the suction side of the compressor. Refrigerant vapor is used to charge the system. Most refrigeration systems are equipped with a charging valve. Some also have liquid line sight

glasses. Factory-sealed hermetic systems, such as are generally used in refrigerators, window units and some self contained units, have neither charging valves nor sight glasses. This type of system is deliberately constructed to discourage field service work. The entire refrigeration system is removable, and when it breaks down, the customer usually exchanges his system for a factory-rebuilt system of similar design. It's best not to tamper with this type of system, at least until the manufacturer has been contacted for instructions.

There are at least four field methods for determining the correct amount of refrigerant charge for a system:

Use Weight as Measure

One method is used particularly for factory-built systems for which the exact weight of charge has been carefully determined by test and stamped on the data plate. The cylinder of refrigerant is placed on a scale and connected to the system charging valve with either a line having a flexible section or a length of copper tubing which has been looped to give it sufficient flexibility so that the scale reading is not affected. The charging line is purged of air and a scale reading is taken. The desired weight of charge is subtracted from the scale reading to get the final reading. The cylinder valve is first opened and then the charging valve is cracked. The compressor is started and refrigerant is allowed to enter the system slowly until the predetermined scale reading is obtained. The charging and cylinder valves are then closed.

Balancing Scale Is Best

When refrigerant is charged by weight almost any type of scale which is accurate can be used. The best type, however, is the balance with sliding weights which can be set to cause the arm to swing free in balance when the desired amount of refrigerant has entered the system. If the weight of refrigerant required

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is known in advance, it can be pre-weighed at the shop and placed in a special cylinder for the particular job.

Watch Liquid Through Glass

If the weight of charge is not known, the correct charge may be judged by observing a sight glass in the liquid line between the condenser and the expansion valve. This is simply a window in the line. It must be watched constantly during the charging process. Until sufficient liquid is in the condenser to fill the liquid line, the sight glass will expose milky bubbles of vapor in the liquid passing to the valve. As soon as the sight glass clears and there is no visible flow, charging should cease, as there is no way to tell by the sight glass alone when there is an overcharge of refrigerant.

Use High Pressure Gage

Whereas the sight glass is used to tell when there is a minimum charge in a system, the high pressure gage may be used to tell when there is a maximum charge. This too must be observed constantly during the charging process. Charging must proceed slowly and in increments.

After each addition, the charging valve is closed and the system is allowed to operate several minutes. The discharge pressure gage reading is tabulated. If the incremental amounts of charge are not too large, there will be several similar readings. As soon as a rise in pressure is noted, charging should cease because excess charge is beginning to flood the condenser, taking condensing surface out of service. This condition is also indicated by a drop in the temperature of liquid leaving the condenser, since liquid in heat exchange with the condensing medium will tend to become cooler than the temperature at which condensing is taking place.

Check Coil Superheat

A fourth method of gaging the amount of charge, especially applicable to systems with hermetically sealed compressors and capillary tubes, is checking the cooling coil superheat. If various components of the system have been factory-selected for proper performance over a range of conditions, the system may be safely charged until the coil superheat (difference between coil suction temperature and the temperature corresponding to suction pressure) is 5 to 10 deg at normal load conditions.

FULL SIZE WINDOWS and appealing sign attract attention of passersby on busy inter-city highway. Parking lot on lower level provides adequate parking facilities for employees and visitors



Company Name Is Its Best Sales Tool

All promotion, and every move by company personnel, prospects with firm's engineering competence off in a noticeable increase in air conditioning

THE COMPANY NAME can be its best advertisement. Claude Williams, Henry Pope and Dave Hessee, owners of Comfort Engineers, Inc., Durham, N. C., use the company's descriptive title extensively in their advertising and sales promotion to let the public know they are specialists in year 'round air conditioning.

The name Comfort Engineers was selected two years ago, when the owners decided a change was in

order. The new name was selected as more descriptive of the services offered by the company.

To be eligible to use the designation "engineers" in a company name in North Carolina, one of the officers must hold a registered professional engineer's license. This requirement was met by Claude Williams, company president, who holds such a license in North Carolina.

Sales promotion activities are di-

rected toward developing air conditioning prospects who want quality installations. About 70 percent of the company's sales are made on a time and material basis. Prospects' enthusiastic acceptance of this arrangement is a result of the company's efforts to build prestige and create demand for its services because of the dependability of its installations to conform as promised in the contract forms, and the quick and efficient attention to service calls.

Hustle Improves Service Work

The company officers believe the most important factor in the successful operation of a service department is "hustle." Service Manager Dave Hessee spends about half his time in the field working with his servicemen and visiting customers.

The sheet metal shop is under the supervision of Henry Pope, who is the company's sheet metal superintendent, for both shop and job work. One of Mr. Pope's hobbies is working out complicated fittings to meet many of the abnormal requirements of modernization jobs.



SERVICE MANAGER Dave Hessee (standing) reviews schedule of calls with Arnold Utley before he leaves the shop



WELL-DESIGNED DISPLAY ROOM provides pleasant atmosphere for discussing prospects' needs, yet takes up a minimum of floor space in display area

**are planned to impress
... and it's paying
sales volume**

The showroom plays a big part in the company's sales activities, too. Modern chairs and tables, magazines books and floral displays establish a pleasant atmosphere for discussing prospects' needs. Displays include horizontal oil-fired furnaces, electronic air cleaners, air cooled condensing units, highboy and lowboy furnaces, coils for air conditioning evaporators, and diffusers.



LIVING UP TO COMPANY NAME and reputation calls for careful engineering of each job. President Claude Williams (left) and John Pope select design factors from technical reference book



UNUSUAL FITTINGS FOR MODERNIZATION JOBS are checked by (from left) Mr. Williams, Hugh Woods and Henry Pope



WHOLESALER'S SERVICE is put to use each time a special advertising effort is undertaken. Mr. Williams (left) and H. L. Godwin, wholesaler, go over half-page newspaper ad featuring employees

The showroom is well lighted at night; during the day it is easily seen from the busy highway in front of the building. On two sides of the showroom are floor-to-ceiling plate glass windows which afford a clear view of the entire equipment display in the showroom.

Ads Stress Engineering

Newspaper advertising for summer air conditioning begins the first week in March. Usually, a quarter-page ad is run each Sunday, announcing that the company offers the services of both layout and service engineers. The ads identify the company's personnel as "engineers" who approach every job from an engineer's point of view. Ad copy stresses the thoroughness applied to every installation, in both estimating and selection of equipment.

On special occasions, half-page ads are run in the Sunday papers. One recent special ad spotlighted the company's personnel. Employees were introduced to readers in individual caricatures, each of which was identified by name and position held in the organization. This type of advertising not only acquaints the public with the company personnel but also demonstrates the company's pride in its employees and their work.

Holdovers from the previous summer are followed up in April. In the Durham area, summer air conditioning equipment frequently gets its first call during May. Prospects are reminded of this fact and urged to order their summer air conditioning units during April to avoid the discomforts of the first hot spell.

Presentation Builds Confidence

The sales presentation is designed to build prospect confidence in the salesman's ability as an engineer and in the company's competence in backing up his proposal. The salesman makes a complete survey of the premises, which is used to prepare a detailed drawing. The drawing, along with descriptive literature, is placed in a folder which is presented

with a contract proposal at the time the effort is made to close the sale. To avoid wasting time on prospects who are not likely to buy or who may not be good customers, each prospect's business reputation, the length of time he has held his job and his standing in the community are carefully checked before the final stage of the presentation.

Financing of the installations has proved to be the biggest barrier to closing sales. The necessity for financing is carefully introduced to the prospect by pointing out that many large companies who could well afford to pay cash for materials usually prefer to pay on an installment basis. The salesman explains that it is considered good business to use this type of payment plan.

Talk in Terms of Daily Cost

If the presentation shows signs of developing into a haggle over price, the difference between the price offered by the prospect and that quoted by the company is divided by five (representing the number of years during which this amount of money would be paid off) and this figure is divided by the number of days in a year. For each \$100 difference between the salesman's quote and that of a competitor or the prospect's offer, the difference in actual cost amounts to about six cents a day.

Mr. Williams instructs salesmen to point out that high humidity is often encountered even when temperatures are not objectionably high and that one of the primary purposes of a well designed air conditioning system — over and above compensating for changing outdoor temperature conditions — is to provide proper humidity at all times within the living area. This statement has been responsible for off-season sales when prospects are not particularly temperature-conscious.

Installations are usually made by two men and require approximately 32 man-hours (two days).

Residential air conditioning installations are scheduled 24 to 48 hours after the sales contract has been signed.

Company records show no cancellations by people who have signed contracts.

Use Wholesaler's Services

At the end of the season, the firm has no excess stock because Mr. Williams relies on his wholesaler as his stocking agency. He keeps in close touch with the wholesaler, estimating in advance how much and what type of equipment he will need, based on the previous year's sales and the anticipated increase for the current period. When he finds an interested prospect he alerts the wholesaler that he may be ordering a certain piece of equipment shortly.

June is the busiest month for installing central residential summer air conditioning equipment. However, the peak selling period frequently extends into the middle of July, and tapers off thereafter.

Check-Out Reflects Competence

No job is considered finished until the company has completely balanced the air distribution system. The testing instruments which provide information on air delivery temperature, volume and velocity are used conspicuously. These instruments, used efficiently, impress prospects; their findings and those of the recording instruments provide the customer with a record of the complete job. A copy of the 24 hour temperature and humidity recording in the conditioned area is given to the customer.

This impression of engineering efficiency is conveyed also by the company's servicemen who continue to develop customer relationships by identifying and conducting themselves as service engineers. They also use instruments wherever required and do the job in a businesslike way, demonstrating their familiarity with the equipment and knowledge of how to adjust it.

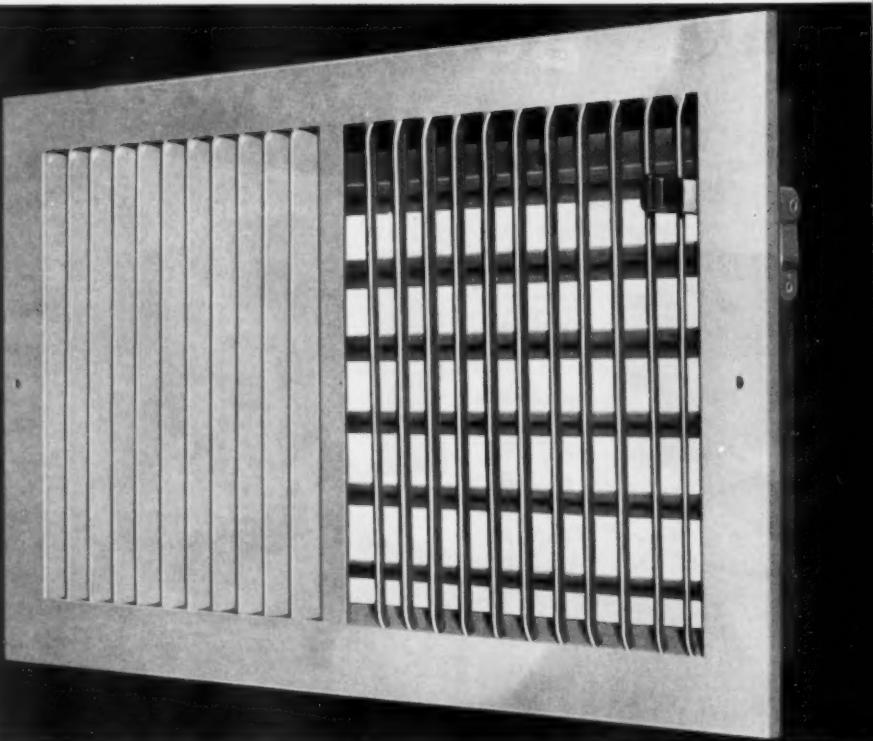
This company believes in living up to the name, "Comfort Engineers," which it selected as descriptive of its operation and the services it offers to customers.



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- ★ New Adjusto-Stop
- ★ New low, low price



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Winter Air
Conditioner
with enameled
Return Air
Cabinet (an
accessory).



Gas Counterflow
Unit, showing
complete Factory
Assembly



Winter Air
Conditioner
with Plenum
Type Cooling
Cell

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Typical of Moncrief's years ahead design and construction are the completely assembled and wired Gas Fired and Oil Fired Winter Air Conditioners and 21-gauge at left, 14- and 16-gauge Heat Exchangers and 21-gauge Casings give them substance that you can feel and measure. Compact and good looking, these furnaces are approved with the high air deliveries needed for summer air conditioning. Hibey and Counterflow models . . .

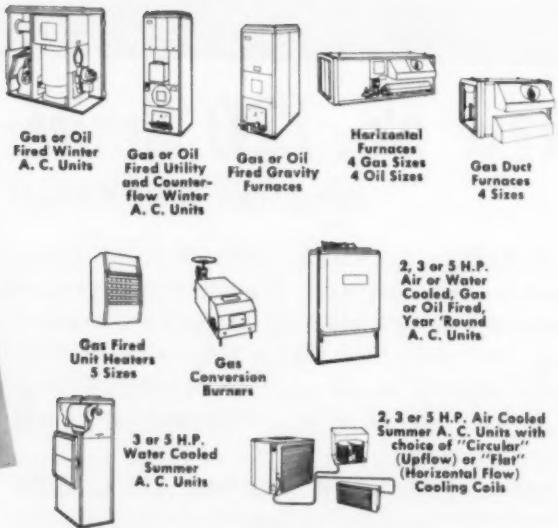
Gas Fired: 75,000, 100,000,
125,000 and 150,000 Btu Input.
Oil Fired: 74,800 and 112,000 Btu
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Why pay more, when you can buy Moncrief for less?

Moncrief prices contradict the idea that the higher price buys the better product. For in Moncrief, you get furnaces and air conditioners that not only give you premium construction, but also are backed by more than 60 years of manufacturing experience combined with utmost customer satisfaction.

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THE HENRY FURNACE COMPANY • Medina, Ohio

HEATING AND AIR CONDITIONING UNITS

MONCRIEF

FURNACE PIPE AND FITTINGS



Idea Exchange

for

Dealers, Contractors

Shop Charts Show Arc Lengths for Fittings

ACCURACY is the watchword in fabrication of sheet metal duct fittings, for two major reasons: 1) to reduce waste of time and material and 2) to display the skill of the mechanic to the customer. Any device that can be used to reduce the margin for error is an asset to the sheet metal shop. Lee Carroll, shop superintendent, Combustioneer Corp., Arlington, Va., designed the accompanying table to enable the layout men to identify quickly the dimensions needed for circumferences and 90 deg. arcs.

Chart Hung At Layout Benches

The table of dimensions was painted on a sheet metal tablet in heavy black letters 2 in. high and hung on the wall over each layout bench. When the layout man has determined the radius of a round duct or the throat radius of a 90 deg elbow, he can tell the length of the circumference or arc by reading across from the figure in the left column.

For example, say the layout man must determine the length of a collar for an 8 in. round duct. He would read across from the figure 8 in the left column and find that the "stretched out" length of the collar would be 50 $\frac{1}{4}$ in. as shown in the second column.

To determine, as another example, the length of the flat side of the throat for a 90 deg elbow in which the radius of the throat arc is 6 in., locate the figure 6 in the left column and read across to the right column. The length of the flat section will be 9 $\frac{1}{2}$ in.

A third use would be to find the length of the flat section for the heel of a 90 deg elbow. Suppose in this example, the radius of the throat arc is 6 in. (as in the second example) and the elbow is 8 in. deep. By adding the 8 in. depth to the 6 in. radius, the radius of the heel will be found to be 14 in. The figure in the right column opposite 14 is 22; thus, the flat section for the elbow will be 22 in. long.

Common Circumference and 90 Deg Arc Dimensions

(To Nearest 1/16 in.)

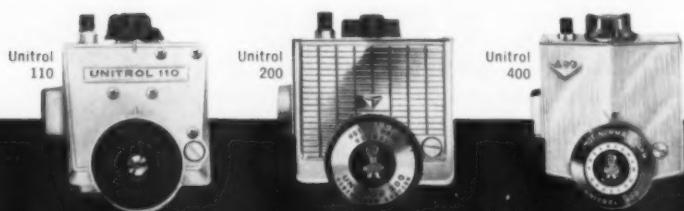
Radius	Full Circumference	90 Deg Arc at Heel or Throat
3	18 7/8	4 3/4
3 1/2	22	5 1/2
4	25 1/8	6 1/4
4 1/2	28 1/4	7 1/16
5	31 7/16	7 7/8
5 1/2	34 9/16	8 5/8
6	37 3/4	9 1/2
6 1/2	40 5/8	10 1/4
7	44	11
7 1/2	47 1/8	11 3/4
8	50 1/4	12 1/2
8 1/2	53 3/8	13 5/16
9	56 1/2	14 1/8
9 1/2	59 5/8	14 7/8
10	62 7/8	15 3/4
10 1/2	66	16 1/2
11	69 1/8	17 1/4
11 1/2	72 1/4	18 1/16
12	75 3/8	18 7/8
12 1/2	78 1/2	19 5/8
13	81 5/8	20 1/2
13 1/2	84 3/4	21 1/4
14	87 15/16	22
14 1/2	91 1/16	22 7/8
15	94 1/4	23 5/8
15 1/2	97 3/8	24 3/8
16	100 1/2	25 1/8
16 1/2	103 5/8	26
17	106 3/4	26 3/4
17 1/2	109 7/8	27 1/2
18	113 1/8	28 1/4
18 1/2	116 1/4	29 1/8
19	119 5/8	29 15/16
19 1/2	122 1/2	30 5/8
20	125 3/4	31 3/8
20 1/2	128 3/4	32 1/4

out of the blue sky.

ROBERTSHAW brings you

* water heater **UNITROLS** with pressure

- Increase gas burner ratings
- Improve ignition performance
- Make components more compact
- Simplify assembly



Now you have a selection of standard Unitrols 110, 200 or 400 . . . or for these additional benefits, specify the Unitrol 110 **R**, Unitrol 200 **R** or Unitrol 400 **R**!

...into reality! the *R** series!

regulators built in!

Robertshaw announces the most advanced *new* water heater controls ever engineered—the *R** series... new Unitrols featuring built-in pressure regulators to increase your water heater ratings and sales! The basic Unitrol functions of thermostatic gas valve, main gas cock, 100% automatic pilot, pilot adjuster and pilot filter are included in combination with a built-in pressure regulator.



UNITROL 100 The smartest way to boost sales... the ultimate in appearance, dependability and efficiency... plus a new built-in pressure regulator.



UNITROL 200 The smarter control with the stepped-up appearance to step-up sales... plus a new built-in regulator!



UNITROL 110 The smart, low cost water heater control featuring the dependability and savings of the Unitrol 110... plus a new built-in pressure regulator!



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GRAYSON CONTROLS DIVISION • LONG BEACH, CALIFORNIA

Legal Price Cutting Implies 'Good Faith'

Because of the fact that price cutting seldom eliminates competition, courts unfortunately find it hard to pin an intent to injure on a price cutter

AN EFFORT WAS MADE by one of the western states recently to prevent a dealer from selling merchandise at less than cost. Offers or sales are illegal under the statutes of that state when — and only when — they injure or destroy competition. These laws, like most state statutes and federal laws, hold that price cutting is not illegal when it is made in good faith to meet competition.

Must Show Intent to Injure

Commenting on this state law against selling below cost, the court pointed out that 29 other states have statutes against sales of this character, adding that 28 of these statutes stipulate that to be considered a violation, the offer or sale must be made with the intent to injure a competitor or destroy competition or both.

Judging by past court decisions in various states, absence of obvious intent to ruin a competitor usually exempts price cutting from the penalties imposed by these laws.

Compare Competitors' Prices

The most important factor in deciding on the legality of the slashing of prices (aside from the actual cost of the merchandise) is the comparative prices of the competitors in the area. Other deciding factors are display advertising and giveaway policies.

The western dealer who was charged with violation of the price cutting statute protested that his advertising and sales were made in good faith to meet competition, and were necessary to the survival of his business.

The statute in that state provides a common exemption from the penalty of illegal price cutting. The laws prohibiting sales below cost or the cutting of prices do not apply when the price is reduced "in an effort made in good faith to meet the legal prices of a competitor selling the same commodity, articles, goods, wares or merchandise, in the same locality or trade area."

Applying this provision to the facts involved in the case at hand, the court said, "An exemption such as this is common in unfair trade acts.

Price cutting is covered in state and federal laws with which dealer-contractors should be familiar. This is the second in a series of four articles dealing with this important subject. Last month's article discussed illegal price cutting.

Eighteen states have similar provisions, i.e., exempting sales below cost made in good faith, to meet the legal price of a competitor. Eight states require only good faith meeting of competition without reference to the legality of the price."

Statutes Assume 'Good Faith'

These statutes' provision that a price made to meet competition is legal assume that price is set in an "endeavor in good faith" to meet the price of a competitor.

Another stipulation in these state statutes is that such an act must affect

competition. "The phrase 'destroy competition' or its equivalent," asserted the court, "is a part of the unfair trade statutes of 15 states in addition to this one. Other states use the phraseology 'substantially lessen competition' or its equivalent, an obviously more workable test."

Competition Seldom Killed

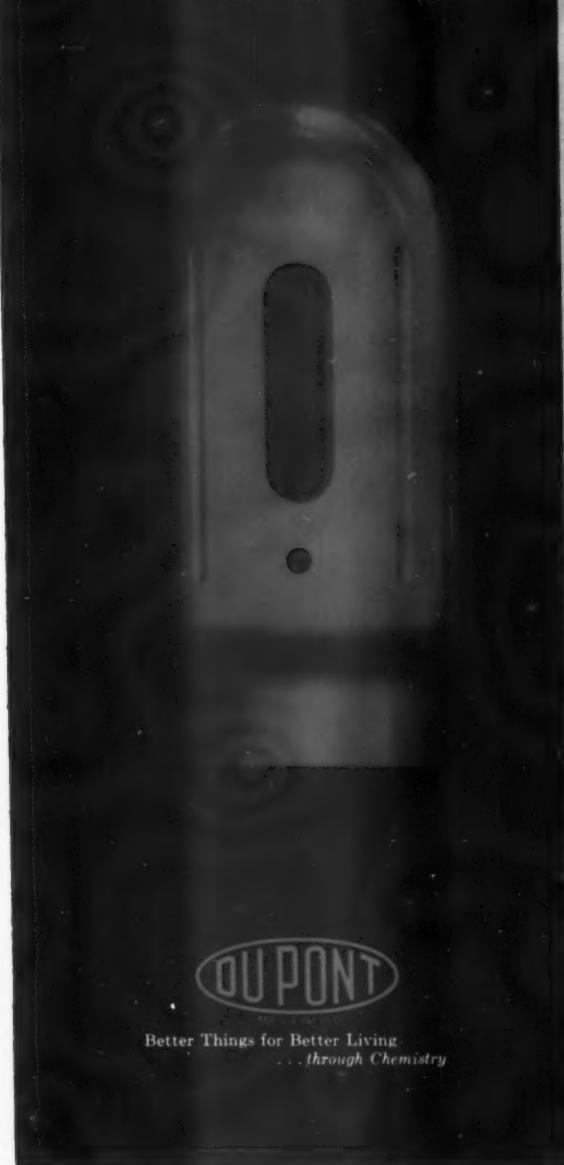
"Although (the phrase) 'destroy competition' is a common test in unfair trade laws it appears to have had no specific judicial interpretation. In short, the obvious literal requirement to satisfy this test might be held to require the complete elimination of all effective competition. However, in considering the practicalities of the evil sought to be remedied and the apparent legislative intent, such a requirement would approach absurdity, for seldom, if ever, is all competition eliminated by even the most severe price cutting."

Tabulates Exemptions

An eastern state court tabulated the types of price cutting which are exempt from these state laws prohibiting sales below cost, price cutting or loss leaders: 1) sale of merchandise in bona fide clearance sales when advertised, marked and sold as such; 2) sale of merchandise quickly to forestall loss; 3) sale of imperfect or damaged merchandise; 4) sale of goods in final liquidation of business; 5) sale of goods for charitable purposes; 6) sales to the government; 7) sales made by order of a court; 8) sales in which the price of the merchandise is made in good faith to meet the current price of a competitor for the same goods.

[Note: While this discussion applies to actual cases, it should be remembered that legal rules vary in different states.]

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*this golden cap
identifies Freon^{*}
premium quality
refrigerants*



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Coming soon! Gold-capped cylinders—the new way to identify "Freon" premium quality refrigerants. Each gold-capped cylinder of "Freon" is *factory-sealed* by Du Pont to make sure you get the high purity guaranteed by 27 years of manufacturing leadership.

Today "Freon" is so dry and pure that the published specifications for "Freon" refrigerants are the accepted standards of quality for the entire industry. Best of all, "Freon" costs no more than refrigerants that are supposed to be "just as good". So *insist on "Freon"*—the time-tested, premium quality refrigerants—now identified by cylinders with the new gold colored hood cap.

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*Freon and combinations of Freon and F- followed by numerals are Du Pont's registered trademarks for its fluorinated hydrocarbon refrigerants.

Another new fastener idea by Parker-Kalon

SPINNERS?

Screws on the floor mean trouble at your door! Ordinary fasteners when used in the assembly of thin gage metal sheets, often spin or slip—result in work stoppages, salvaging operations, higher production costs.

Now you can substantially reduce waste motion, rejects and lost time, with Parker-Kalon's new "Hi-thred" Self-tapping Screw . . . the new fastener that *grips securely without spinning or slipping . . .*

even in very thin gage metal sheets.

Developed by P-K's research team, the revolutionary "Hi-thred" is THREADED FULL TO THE HEAD —WITH THE LAST THREAD ACTUALLY TERMINATING IN AN ANNULAR ORIFICE IN THE HEAD ITSELF!

For samples, see your nearby Industrial Distributor or write P-K direct. "Hi-thred" fasteners are available in production quantities in Types "A" and "Z" in non-countersunk head styles.

PARKER-KALON® "Hi-thred"
Self-tapping Screws

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Sold everywhere through leading Industrial Supply Distributors

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This triumph of aerodynamic design actually creates an unfailing circulation of air without any mechanical aids of any kind! You must see an installation to believe it!

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- 7 times lighter than comparable galvanized units! Just 23 pounds each, can be installed in any type of factory roof
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- Removes heat from source before it can spread throughout plant
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Nardon Manufacturing Co., Alhambra
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TECHNICAL MANUAL describing **COLT** System

"Some Aspects of Fire Prevention in Industrial Buildings", by M. J. Reaney

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COLT VENTILATION OF AMERICA, INC.

WHAT THE ASSOCIATIONS ARE DOING

Canadian Chapter Develops Warm Air Course



LEWIS W. JUDGES explains details of furnace operation to students at Central Technical School, Toronto

OVER THE PAST YEAR, the National Warm Air Heating and Air Conditioning Association of Canada has been working with teachers of the sheet metal section of the Ontario Educational Association on the development of a course in heating and air conditioning to be taught in vocational and technical schools. The association has prepared the manual "Principles of Air Conditioning" to be used as a textbook. To date, manufacturing members of the association have donated some 20 complete working models of forced warm air furnaces to vocational and technical schools throughout Canada to stimulate greater interest in warm air heating and air conditioning. Schools interested in setting up warm air heating-air conditioning courses may write for further details to association headquarters — 4195 Dundas St., W., Toronto 18.

The Canadian chapter has recently launched a "Certified Indoor Comfort System" campaign. Under the certified system program, a member of the national chapter who is also a member in good standing of a local chapter can offer his customers a "Double Seal" system. The double seal assures the purchaser that both the equipment installed and the design of the heating system have met the requirements of a certified system as defined by the national chapter. A participating dealer-contractor must submit a set of plans for such an installation to the national association and pay a fee for approval of plans. He must agree to complete the installation in accordance with the approved plans and install equipment for which the chapter has on file an affidavit from the manufacturer attesting to the capacity and efficiency of the equipment used. The manufacturer will provide an approved seal with each furnace that is to be used on certified installations. This seal will be incomplete until the warm air heating dealer-contractor has added his portion of the

seal. Upon completion of the installation, the dealer-contractor will send a copy of an inspection report to association headquarters along with an affidavit attesting that he has installed the system in accordance with the heating plans as approved by the association. Money collected as fees for seals will be used primarily in national advertising promoting the certified system program.

New England Group Elects Officers

THE SHEET METAL and Air Conditioning Contractors' Association of New England, Inc., recently elected Chester C. Duval to serve as president for the coming year. Other new officers are H. Ray McCarthy, vice president; James Ceco, secretary; and Joseph F. King Jr., treasurer. New directors are Thomas P. Queenan, George P. Fandel Jr., Richard Tombeno, Thomas H. Terrio, Clayton Sova and Fred Bonazzoli.

The association recently celebrated its third successful year with an anniversary dinner held at Lexington, Mass. Tom Conally, executive secretary, served as host to 30 members.

Possible meeting locations were considered at a short business session following the dinner, with most of the members favoring the Boston area. The program for the evening featured a technical discussion on the subject of registers, grilles and diffusers. The group's publicity chairman, Clayton R. Sova, points out that sessions such as this provide members with information on the latest developments in the field, thus enabling them to offer better service and build customer good will.

The association's efforts during the coming year will be directed primarily toward promoting local heating codes and certified heating. Warm air heating dealer-contractors interested in learning more about the organization's aims are invited to write the group's president, Chester C. Duval, 3 New St., Lexington 73, Mass.

Detroit Gets Better Heating Bureau

THE BETTER HEATING and Cooling Bureau, with offices at 2409 Cadillac Tower, Detroit, has been formed to upgrade the heating, air conditioning and sheet metal industries and to educate the public to demand quality installations. The bureau has drawn up a residential warm air heating code, which it hopes to have adopted as a citywide and municipal ordinance. Copies of the code may be obtained by calling or writing the bureau.

The bureau has 125 licensed members in more than

(Continued on page 80)



**Stainless Steel
welding information:**

*Keep it clean

You get strong, tight joints when you weld Stainless Steel, but you have to make sure the surfaces have been thoroughly cleaned. Any grease, oil or dirt on the welded surface might affect the corrosion resistance of Stainless.

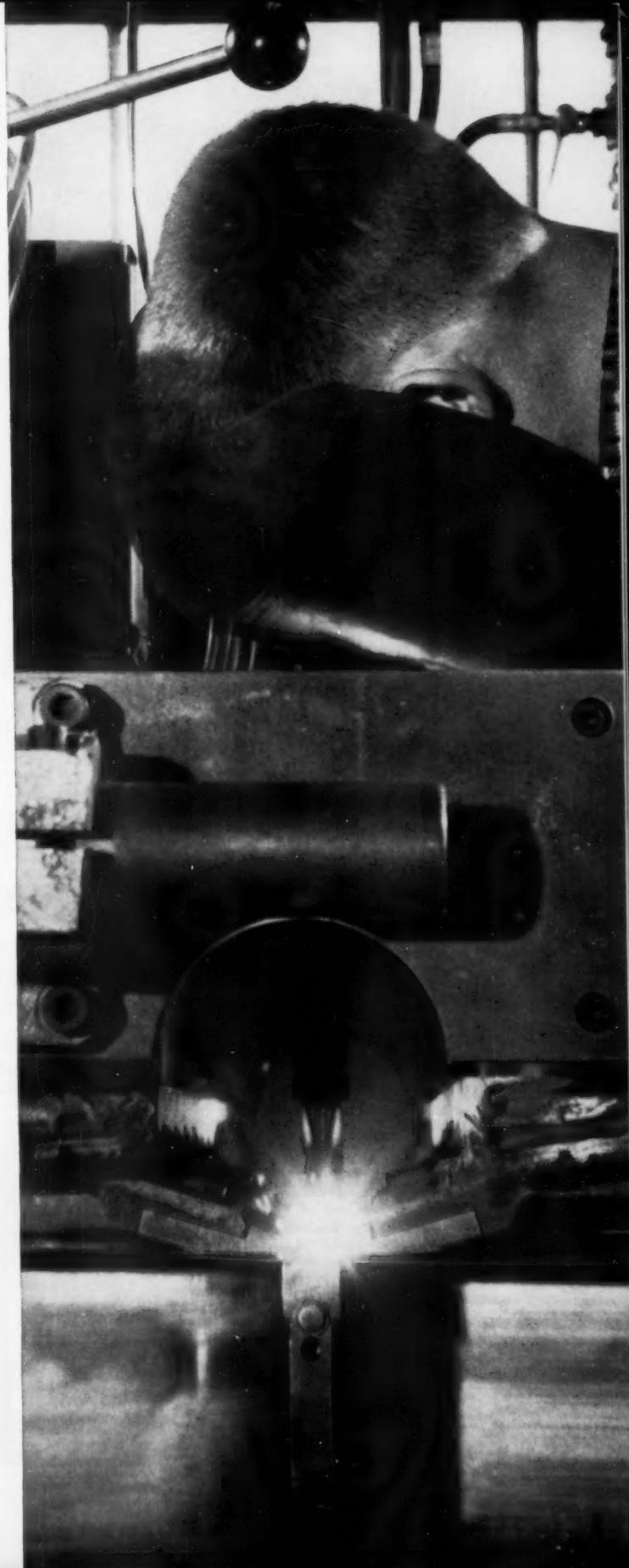
When you want to repair a crack, it's a good idea to chip out the cracked area completely so you're sure that only clean, solid metal is exposed. And remember, there are a lot of different kinds of Stainless Steel and they don't all react the same way. Be sure you handle each job right—check the "Stainless Steel Fabrication Book" before you start. If you don't have a copy of this 130-page guide, write on your company letterhead to United States Steel, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

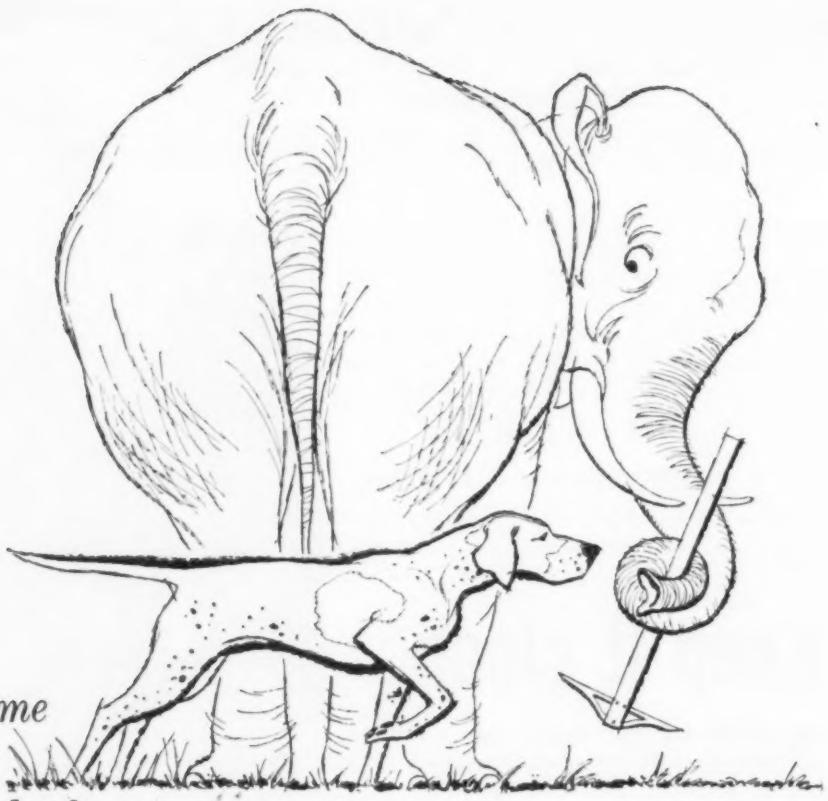
Remember: Stainless Steel isn't difficult to fabricate; it's just different.

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American Steel & Wire—Cleveland
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*Hunting big game
in the new
construction market?*

DODGE REPORTS point directly to your firm's live prospects

Your salesmen's time and energy can be spent more profitably in *selling* than in trial-and-error canvassing. In the new construction market, it's simply a matter of using *Dodge Reports* to pinpoint live prospects . . . to guide the timing of sales calls.

You select the areas (within 37 eastern states) and types of construction you're interested in.

Then *Dodge Reports*, mailed directly to you or your men, give advance notice of new construction in their territories . . . where . . . when . . . what kind . . . how much it is going to cost . . . whom to call on. Follow-up reports tell when bids are wanted and who else is bidding on every phase of construction — until the last subcontract is let.

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Laboratory tests prove the Van-Packer Factory-Built Masonry Chimney reaches maximum draft faster than metal flues and shows less cooling after burner shut-off (more potential draft for next furnace cycle). This higher draft means peak operating efficiency for your furnace installation . . . cuts needless furnace service call-backs, too. Profit on the *entire* heating system by installing the furnace *and* Van-Packer Chimney. See your nearest Van-Packer jobber listed under "Chimneys-Prefabricated" in the Yellow Pages, or write Van-Packer for Bulletin RS-1-11.



Masonry construction makes Van-Packer safe even for incinerators. Withstands 2100° F.



Adjustable flashing and acidproof joint cement are provided.



Van-Packer Chimney comes completely packaged in sturdy, easy to handle corrugated cartons.

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WITH THE ASSOCIATIONS

(Continued from page 76)

100 communities in Washtenaw, Wayne, Macomb and Oakland counties. Serving on its board of trustees are A. W. Keats (chairman), King Cole Heating and Cooling Corp., Detroit; M. Vanassche, Rene Vanassche & Sons, East Detroit; M. Partovich, Louis Heating Co., Detroit; N. Strickstein, Auto-Therm Corp., Centerline; and George Asher, executive secretary of the bureau.

The first phase of the bureau's industry promotion will be directed at home owners and home buyers. The second phase, scheduled to go into effect in 1959, will be aimed at architects, engineers and industries interested in large heating units.

The bureau will maintain free service to prospective new home buyers and home owners who will submit heating plans or request recommendations and guidance. Bureau officials will advise whether or not a heating system meets the bureau's requirements and will recommend any alterations needed to bring heating plans up to the group's standards.

Outlines Benefits Association Offers

THE NEED FOR SMALL BUSINESSMEN, particularly those in the warm air heating and related industries, to join forces to combat their problems was emphasized by Charles S. Flynn, president of the Michigan Heating and Sheet Metal Association, in a recent talk to members of the Southwest Michigan Heating and Air Conditioning Association. As a result of the meeting, the recently-organized southwest Michigan group, composed of dealer-contractors in the Benton Harbor-St. Joseph area, unanimously endorsed affiliation with the state association. Other speakers included members of the Kalamazoo association — Lewis

Andrus, Harold Guernsey, and A. Fred Madaus — who outlined a heating code recently developed by the Kalamazoo group.

Other meetings are planned by the state association with dealer-contractors in major cities throughout the state to discuss problems of the industry and urge affiliation with the state association.

Dayton Limits Size of Phone Book Ads

PETE ROSS, chairman of the yellow page advertising committee of the Dayton Heating, Air Conditioning, Sheet Metal and Roofing Contractors' Association, reports that the group's campaign to limit the size of telephone book display ads to $\frac{1}{8}$ page was highly successful. Dayton dealer-contractors "cooperated 100 percent". Mr. Ross says. He pointed out that it has been proven that the size of an ad is not a major factor in drawing a prospect's attention.

The Dayton association's code and ordinance committee is meeting with Kettering, O., officials to help formulate a heating licensing law in that city. Dayton warm air heating dealer-contractors are hopeful that the passage of this ordinance will solve the legal problems in which heating men are presently involved with plumbers.

The master electrical contractors of Dayton have requested a meeting with the Dayton association to discuss the passage of a licensing law for electricians. A previous attempt was made two years ago to pass such an ordinance; however, the ordinance was shelved because of the objections of the heating association to certain of its provisions.

Wisconsin Membership Drive Sparked by Contest

THE SHEET METAL CONTRACTORS Association of Wisconsin is conducting a membership contest open to personnel of dealer-contractor and supplier member companies, to advertisers in the group's 1958 year book and their employees, and to 1958 convention exhibitors and their employees. Grand prizes offered are vacation trips for two to Florida or Colorado Springs. In addition, all contestants receive cash prizes based on the number of points they accumulate.

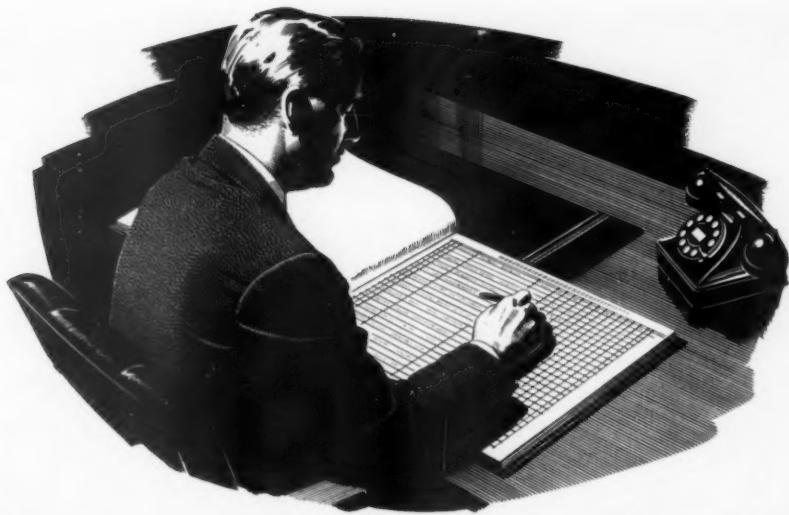
Five points are given for each new membership application turned in. Five points are also awarded for each three-day advance registration to the 1959 convention. One point is given for a one-day advance registration to the convention, and one point is awarded for each individual luncheon or banquet ticket sold. (Advance registrations must be for dealer-contractors who did not attend the 1958 convention.)

When a contestant has earned five points, he may win an extra point by submitting a letter to the executive secretary explaining what he thinks of the association and outlining suggestions for improving its services to the industry. For every point accumulated, a contestant receives \$1. When he has accumulated 100 points, he becomes eligible to compete for the grand prize.

Literature accompanying the contest rules explains that benefits derived from an association's activities are participated in by the manufacturer, the wholesaler, the salesman, the dealer-contractor, and the public. The letter points out that everyone will gain if:

More dealer-contractors become association members — so that they, too, can enjoy the benefits of association activities such as discussions, forums, and study reports on cost allocations, overhead, forms of business organiza-

(Continued on page 84)



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Need stainless steel in a hurry? Call in your local Republic ENDURO Stainless Steel Distributor. He will give you "minute-man" service to fit your specific needs saving you an investment in machinery, cost of skilled labor, scrap and wastage, maintenance and floor space, taxes and insurance.

But delivering stainless steel when you need it, where you need it, is only part of his service. Your ENDURO Distributor provides expert

advice on fabricating and metallurgy. Republic field, laboratory, and mill metallurgists are available through him, to help you solve difficult production and fabricating problems.

When you need stainless steel in a hurry, call the nearest Republic Stainless Steel Distributor—Your Steel Service Center—listed below. Let him show you how your inventory problems can become profit opportunities.



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CALL YOUR REPUBLIC ENDURO® STAINLESS STEEL DISTRIBUTOR

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ARIZONA
Ducommun Metals & Supply Co.,
Phoenix,

ARKANSAS
Hammond Sheet Metal Company,
Fort Smith,
Little Rock,

CALIFORNIA
Ducommun Metals & Supply Co.,
Berkley 10,
Los Angeles 34,
Norton City,
Allen Fry Steel Company
Los Angeles,
E. M. Jorgensen Company,
Los Angeles 54,
Oakland 23,

COLORADO
Marsh Steel Corporation,
Denver 16,

CONNECTICUT
Edgcomb Steel of New England,
Incorporated,
Milford,

FLORIDA
Coulley Steel and Supply
Company,
Fort Lauderdale,
Miami,
Orlando,

EPALE
Eagle Roofing and Art Metal
Works, Inc.,
Tampa,

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Reynolds Aluminum Supply Company,
Miami,
J. M. Tull Metal and Supply Co., Inc.,
Jacksonville,
Miami,
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GEORGIA

Atlanta Steel Company,
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Atlanta 1,
Savannah,

J. M. Tull Metal & Supply Co., Inc.,
Atlanta 2,

IDAHO

Pacific Metal Company,
Boise,

ILLINOIS

Chicago Steel Service Company,
Chicago 32,

INDIANA

Hubbell Metals, Inc.,
Indianapolis 2,
Ohio Valley Hardware & Roofing
Company,
Evansville,

KANSAS

Marsh Steel Corporation,
Wichita,

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Reynolds Aluminum Supply Company,
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MASSACHUSETTS

Hawbridge Brothers Company,
Boston 10,

MICHIGAN

Huron Steel Company,
Detroit 16,

MISSOURI

Edgcomb Sheet Metal Company,
St. Louis 5,

Hubbell Metals, Inc.,
St. Louis 3,
Marsh Steel Corporation,
North Kansas City 16,

NEW HAMPSHIRE

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NEW YORK

Atlas Supply Company, Inc.,
Bronx 56,

Brown, Boveri & Company, Inc.,
Buffalo 5,
Brooks-Mueller-Hunfley, Inc.,
Buffalo,

Rochester,
Syracuse,

Bruce and Cook, Inc.,
New York 38,

Eastern Metals Warehouse, Inc.,
Albany,

Ernst Iron Works,
Buffalo,

Follansbee Metals Corp. of New
York,

Edgewater,

Horace, Inc.,
Brooklyn 32,

K. & S. Metal Supply, Inc.,
Long Island City,

Metal Purchasing Company, Inc.,
New York 1,

NEW YORK (Cont.)

Schwarz and Cohn, Inc.,
Brooklyn,

NORTH CAROLINA

Metal Service Corporation,
Charlotte,
Reynolds Aluminum Supply Company,
Raleigh,

Vance Iron and Steel Company,
Charlotte,

OHIO

The Ohio Metal & Manufacturing
Co.,
Dayton 2,

Vance Iron and Steel, Inc.,
Columbus 8,

Williams and Company, Inc.,
Cleveland 14,

Cincinnati 29,

Columbus 8,
Toledo 12,

OKLAHOMA

E. M. Jorgensen Company,
Tulsa,

OREGON

American Steel Warehouse
Company,
Portland 14,

Pacific Metal Company,
Portland 9,

PENNSYLVANIA

Hill-ChaseSteel Company, Inc.,
Pittsburgh 34,

Potts-Farrington Company,
Philadelphia 29,

Horace T. Potts Company,
Philadelphia 34,

The Warren Company,
Erie,

Williams and Company, Inc.,
Pittsburgh 33,

RHODE ISLAND

Hubbell Metals, Inc.,
Providence,

TEXAS

E. M. Jorgensen Company,
Dallas,
Houston,

UTAH

Structural Steel and Forge
Company,
Salt Lake City,

ZCM Wholesale Distributors
Salt Lake City,

VIRGINIA

Dominion Culvert and Metal
Corporation,
Roanoke 5,

Reynolds Aluminum Supply Company,
Richmond,

WASHINGTON

Pacific Metal Company,
Seattle,

CANADA

Drummond McCall and Company,
Ltd.,
Toronto, Ontario,
Montreal, Quebec

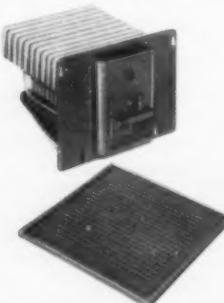
Brings You Orders Over Your Telephone:

Ask Your Distributor To Tie You In, Today!

Your Telephone Number
Ties You In
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Don't Miss One Order; Enroll Today!



Viking Air Products is now spending \$100,000 to bring you consumer telephone orders for Viking Humidifiers and Viking 20-year Air Filters.

Newspapers! Magazines! Publicity! Point-of-Sale!

Everything's geared to get you orders over the phone. No sales calls! No estimates! No extra work! Be sure you're enrolled today; your Viking Distributor has complete details.

VIKING Air Products 5601 Walworth Avenue • Cleveland 2, Ohio



the whole truth

The truth, the whole truth and nothing but the truth . . . requires that we pass along to you the one **disadvantage** of the gentle Thermo-Base system of air distribution.

Yes, in fact, in all fairness to those of your prospective buyers who own a dog, you should forewarn them that there will be a few days of frustration . . . the dog will no longer know where to go for his siesta . . . the places he always avoided are suddenly as cozy as his former favorite spots. He will seem confused for a while. He may never understand the reason for the complete disappearance of drafts, but, like the master of his house, he will soon love the change. It will restore his faith in human nature . . . man is dog's best friend . . . and Thermo-Base is America's greatest comfort discovery.

GERWIN INDUSTRIES, INC.

STANDARD MODEL

Thermo-Base

GLASS WALL MODEL

MICHIGAN CITY, INDIANA

COMMERCIAL MODEL

WITH THE ASSOCIATIONS

(Continued from page 80)

tion, bookkeeping systems, legislation, insurance, labor relations, advertising, codes and licensing, industry manuals, and liens.

More suppliers become associate members — so that they can familiarize themselves and others with the work the association is doing and its efforts to upgrade the industry.

More dealer-contractors attend the annual convention — where they can participate in the various seminars, discussions, lectures, etc., thus broadening their knowledge of present day methods and new applications in the industry.

36 Graduate from Oil Burner School

THIRTY-SIX MEN were recently graduated from the oil burner service school sponsored by the Heating & Air Conditioning Association of Indianapolis and the Oil Heat Institute of Indianapolis. The school was conducted by the division of adult education of the Indianapolis Technical High School.

Two and a half hour meetings were held twice a week — Mondays and Wednesdays — for a period of 10 weeks. The course included a study of four types of oil burners, and covered subjects such as pump and ignition problems, combustion efficiency and testing, electric motor service, servicing and adjusting controls, and public relations for the serviceman.

Two oil burner service courses are scheduled to start this fall.

Set Dates for 1959 SE Trade Show

THE 1959 SOUTHEAST TRADE EXPOSITION will be held Mar. 19-21 at the Atlanta Biltmore Hotel, Atlanta, Ga. Some 14,000 sq ft of floor space is available for exhibition of materials, products, equipment, tools and supplies for dealer-contractors in the warm air heating, air conditioning, sheet metal, roofing and insulation fields. Attendance — to be made up of dealer-contractors, architects, engineers and industrial executives from Alabama, Florida, Georgia, North Carolina, South Carolina and Tennessee — is expected to reach 2000 in 1959. Thirty-two booths have already been reserved by exhibitors, the management reports.

Secretary Finds Artisan 'Most Helpful'

H. J. STOCKARD JR., newly appointed executive secretary of the Carolinas Roofing and Sheet Metal Contractors Association, has requested that his name be added to the American Artisan subscription list. "The one issue I have seen," Mr. Stockard wrote, "has been most helpful to me, and I know I will greatly benefit by receiving your fine publication regularly. Please begin sending copies as soon as possible. I am adding your name to the mailing list

to receive our monthly bulletin, and you may feel free to quote from it at any time."

Grand Rapids Elects Officers

JAMES NYDAM has been elected president of the Grand Rapids Heating & Air Conditioning Association. John Dyke was elected vice president, and Richard Williamson was named secretary-treasurer. New board members are John Dyke, Harry Bosscher and Richard Williamson.

The association has recently prepared a special bulletin which is being mailed to members of the Grand Rapids heating and cooling industry. The bulletin explains the benefits of association membership and outlines objectives attained by the group over the past several months. Since April 1, 1956, the association says, it has:

- 1) Secured the consolidation of the Grand Rapids heating and cooling examining boards, a move which assures fair treatment to the heating dealer-contractor who wishes to obtain a cooling license.
- 2) Publicized the warm air heating and air conditioning industry by installing a year 'round air conditioning system in a 40 year old home during the Innes Street remodeling project. Some 10,000 visitors attended this exhibit, the association says.
- 3) Published a series of thirteen 20 in. display ads in a newspaper building section which informed buyers of heating systems what they should require from their heating dealer-contractor to obtain maximum indoor comfort.
- 4) Prepared a new set of by-laws which clearly outlines membership requirements and the procedures which will be followed in administering association projects.

An application blank is enclosed with each bulletin, which non-members are urged to complete and return to headquarters to assure themselves the benefits of association membership.

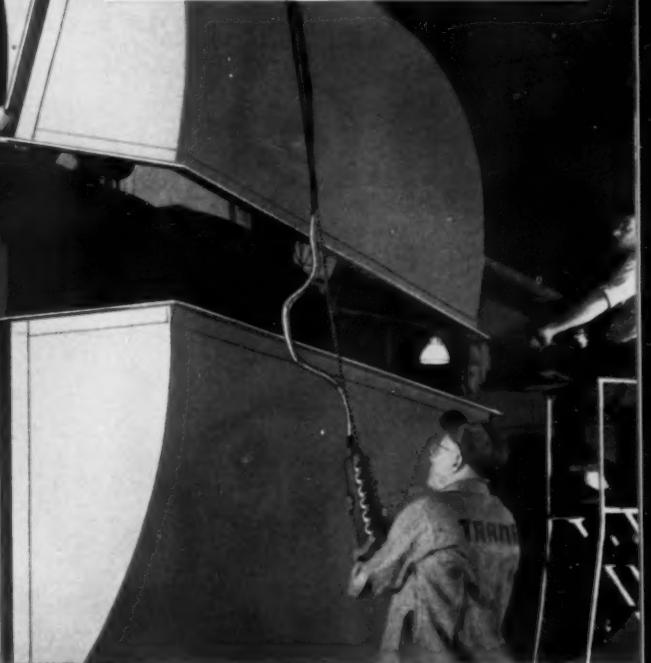
The association is now conducting a series of educational meetings designed to increase the dealer-contractor's profits. Speaker at the first meeting was Richard Pettinga of the Hopson-Bennett Co., who discussed "The Cost of Operation for Service Charges."

Ohio Groups to Hold Joint Meetings

TWO OFFICERS of the Sheet Metal Contractors of Stark County, Ohio — R. G. Cramer and Walter Teel — met recently with officers of the Akron association to discuss "get-acquainted" meetings between the two groups. Joint membership meetings are tentatively planned in the near future.

The Stark County association reports that in the recent county "face lift" project, during which the homes of five widows were put in a state of good repair, the Sheet Metal Contractors of Stark County replaced or repaired all exterior metal, such as spouting, flashing, etc.

(Coming Events on page 88)



For big jobs, **TRANE** Fans are especially designed for industrial processing and drying and for high-pressure air conditioning systems. Complete range of standard sizes from 12 to 89 inches, for static pressures up to 11½ inches. Capacities to 310,000 cfm.

Choose a dependable Trane Fan for any process or comfort job!

Accurate ratings, rugged construction assure quiet, efficient operation

The fans you choose for your air-moving jobs—process or ventilation—may mean the difference between top performance and inadequate performance. That's why leading consulting engineers turn to **TRANE** for fans that are designed for quiet, efficient operation . . . simplified installation and maintenance—and available in a complete range of capacities and types to handle any job.

TRANE Fans are *accurately rated* and ruggedly built. Solid workmanship and the most modern tooling assure consistently dependable performance. And each **TRANE** Fan design has been tested and approved in the industry's most modern and complete testing laboratories.

TRANE gives you a single, reliable source for *all* your air moving jobs: giant Class I, II and III fans . . . Cabinet Fans . . . Utility Fans—all tested under the AMCA and ASHAE Code. **TRANE** field personnel in 97 offices are available to help you make the best selection for any air moving job.

When you need a rugged, dependable fan for human comfort or industrial process, turn to **TRANE**. See your

nearby **TRANE** Sales Office, or write **TRANE**, La Crosse, Wisconsin.

WANT MORE FACTS? Write on your letterhead for Bulletins: FC Fans, Class I and II (DS-348-F); BI Fans, Class I and II (DS-348-B); BI Fans, Class III (DS-348-C); Utility Fans, (DS-348-U). Cabinet Fans, (DS-348-D). Axial Roof Ventilators, (DS-364-A). Centrifugal Roof Ventilator, (DS-364-C).

For any air condition, turn to

TRANE

MANUFACTURING ENGINEERS OF AIR
CONDITIONING, HEATING, VENTILATING
AND HEAT TRANSFER EQUIPMENT

THE TRANE COMPANY, LA CROSSE, WIS. • SCRANTON MFG. DIV., SCRANTON,
PA. • CLARKSVILLE MFG. DIV., CLARKSVILLE, TENN. • TRANE COMPANY
OF CANADA, LIMITED, TORONTO • 97 U.S. AND 19 CANADIAN OFFICES



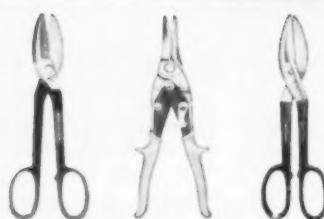
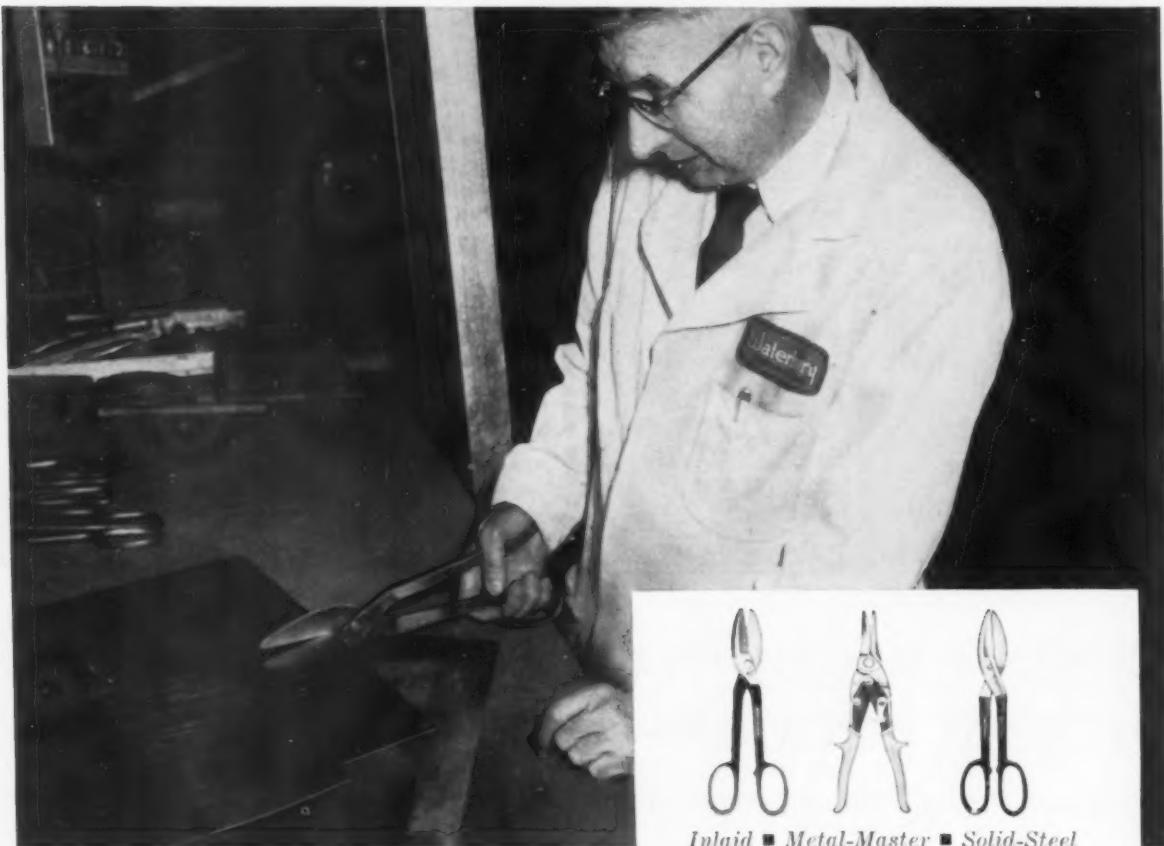
FOR ROOF APPLICATIONS new **TRANE** axial flow and centrifugal roof ventilators are especially designed for low silhouette, efficient air movement. Complete range of sizes and models.

PACKAGED UTILITY FANS for fast, economical installation for hundreds of plant ventilating jobs. Exceptionally smooth and quiet in operation. Capacities to 15,450 cfm.



"THIS PAIR OF WISS SNIPS WAS PURCHASED IN 1922!"

...says John G. DeHaan, President, DeHaan Heating & Roofing Co., Kalamazoo, Michigan



Inlaid ■ Metal-Master ■ Solid-Steel

"Believe it or not, the pair of Wiss snips I'm using here was purchased in 1922 and has been in constant use ever since," says John G. DeHaan.

"That's what I like about Wiss snips. They just don't wear out and they always have a nice, smooth cutting edge. They're comfortable in the hand, too—not clumsy like some others. For our kind of heating and roofing work, Wiss snips have no equal."

Mr. DeHaan adds his praise to that of an increasing number of sheet metal specialists who demand the same quality from their tools as they give to their work. Made by metal craftsmen, Wiss snips deliver that quality because they require as many as 200 steps to produce—many by hand! Next time you need snips, specify Wiss—the standard of perfection for over 100 years.

WISS INLAID BLADE SNIPS cut with lasting sharpness, tremendous power. High carbon crucible steel blades, welded to hot drop-forged frames. Complete range of sizes, 11½" to 17". Models: straight cutting, circular cutting, curved blades, and bulldog notching.

WISS METAL-MASTER AVIATION SNIPS, with amazing compound action, cut with half the effort required by conventional snips! They are preferred by many for their compact size, and ability to make intricate cuts. Left, right and straight cutting models, only 10" long, cut 18 gauge metal. Bulldog combination model, 9½" long, cuts 16 gauge stainless steel!

WISS SOLID STEEL SNIPS, made from a special grade of solid tool steel, are available in straight cutting, circular cutting and bulldog models from 7" to 16". Priced slightly lower than inlaid snips.

WISS

Made by Metal Craftsmen for use by Metal Craftsmen

ALWAYS A CUT ABOVE COMPETITION

J. WISS & SONS CO., NEWARK 7, N. J.

World's Largest Manufacturer of Shears, Scissors, Pinking Shears, Skalloping Shears, Metal Cutting Snips and Garden Shears



Cut, form, hammer  Galvanized Steel Sheets

—the zinc stays on

These are the galvanized steel sheets that take the sharp bends you see in the best-made ductwork. They're USS Galvanized Steel Sheets—strong, yet easy to form. USS Galvanized Steel Sheets *stay protected* because the zinc stays on. Cut, form, roll, hammer, lock-seam

these sheets—no zinc flakes off the steel. Pride in your workmanship should be backed by the best of materials.

Why not make *your* ductwork with top-quality steel—use USS Galvanized Steel Sheets.

USS is a registered trademark

United States Steel Corporation—Pittsburgh
Columbia-Geneva Steel—San Francisco
Tennessee Coal & Iron—Fairfield, Alabama
American Steel & Wire—Cleveland
United States Steel Supply—Steel Service Centers
United States Steel Export Company



United States Steel

Coming Events

December

Dec. 1-3 — National Heating and Airconditioning Wholesalers, annual convention. Hotel Statler, Cleveland. W. R. Bull, executive director, 1200 W. Fifth Ave., Columbus, Ohio.

Dec. 1-3 — American Society of Refrigerating Engineers, semi-annual meeting. Hotel Roosevelt, New Orleans, La. R. C. Cross, executive secretary, 234 Fifth Ave., New York 1.

Dec. 2-3 — National Warm Air Heating and Air Conditioning Association, committee meetings. Statler Hotel, Cleveland. George Boeddener, managing director, 640 Engineers Bldg., Cleveland 14.

Dec. 4-5 — National Warm Air Heating and Air Conditioning Association, annual convention. Statler Hotel, Cleveland. George Boeddener, managing director, 640 Engineers Bldg., Cleveland 14.

1959

January

Jan. 17-22 — National Association of Home Builders, annual convention and exposition. Conrad Hilton Hotel, Chicago. Daniel Grady, convention chairman, 1625 L St., N. W., Washington 6, D. C.

Jan. 26-29 — American Society of Heating and Air-Conditioning Engineers, 65th annual convention. Bellevue Stratford Hotel, Philadelphia. A. V. Hutchinson, executive secretary, 62 Worth St., New York 13.

Jan. 26-29 — International Heating and Air-Conditioning Exposition, Commercial Museum, Philadelphia. E. K. Stevens, exposition manager. International Exposition Co., 480 Lexington Ave., New York 17.

February

Feb. 5-6 — Sheet Metal and Warm Air Heating Contractors' Association of Indiana, annual convention. Antlers Hotel, Indianapolis. J. W. Ridgway, president, 53 W. Meredith, Frankfort, Ind.

Feb. 9-11 — New York State Sheet Metal, Roofing and Air Conditioning Contractors' Association, annual convention. Arlington Hotel, Binghamton. Clarence J. Meyer, executive secretary, 569 Genesee, Buffalo 4.

Feb. 12-14 — Sheet Metal and Roofing Contractors' Association of Minnesota, annual convention. Radisson Hotel, Minneapolis. Ray Kraus, convention chairman, General Sheet Metal Corp., 508 S. 7th, Minneapolis.

Feb. 16-19 — Annual Industrial Ventilation Conference. Kellogg Center, Michigan State University, East Lansing, Mich. James C. Barrett, Michigan Department of Health, Lansing 4, Mich.

March

Mar. 9-11 — Sheet Metal Contractors' Association of Wisconsin, annual convention. Hotel Schroeder, Milwaukee. Robert S. Schmieder, executive secretary, 8320 W. Bluemound Rd., Milwaukee.

Mar. 19-20 — Michigan Heating & Sheet Metal Association, annual convention. Fort Shelby Hotel, Detroit. N. J. Biddle, executive secretary, 3035 E. Grand Blvd., Detroit 2.

Mar. 19-21 — Southeast Trade Exposition sponsored by Sheet Metal, Roofing, Heating, Air Conditioning Contractors' Association of Georgia. Atlanta Biltmore Hotel, Atlanta. B. L. Noblitt, executive secretary, 208 Red Rock Bldg., Atlanta 3.

April

Apr. 10-11 — Sheet Metal Contractors' Association of Illinois, annual convention. Abraham Lincoln Hotel, Springfield. Jay E. Harms, secretary, 1619 N. Sheridan Rd., Peoria, Ill.

Apr. 21-26 — Roofing and Sheet Metal Contractors' Association of Florida, annual convention. Biltmore Hotel, Palm Beach, Fla. Victor Kinsey, president, 1517 N. Poinsettia, West Palm Beach, Fla.

Apr. 29-May 4 — Oil-Heat Institute, annual convention. Olympic Hotel, Seattle, Wash. R. H. L. Becker, managing director, 500 5th Ave., New York 36.

May

May 28-30 — Sheet Metal and Air Conditioning Contractors' National Association, Inc., annual convention. Broadmoor Hotel, Colorado Springs, Colo. J. D. Wilder, executive secretary, 170 Division St., Elgin, Ill.



Get Paid Twice with

Now, every time you sell an Airtemp furnace, or air conditioner, you get paid twice—once at the time the sale is made and once by Airtemp with Airtemp's new Pay-Off Certificates.

How much are your Pay-Off Certificates worth? Well that depends on the kind of Airtemp equipment you sell. But here's the important point—you can use your Airtemp Pay-Off Certificates just like cash when you order new equipment.

In effect, this Double Pay-Off Plan boosts your mark-up. It helps you meet price competition *and still make a normal profit*. There are other reasons, too, why you make money with

an Airtemp franchise. For Example:

- Airtemp's trouble-free operation cuts service calls, lets you keep your initial sale profit.
- Airtemp's really complete line—297 models. You can satisfy any customer.
- The prestige of the Chrysler name and Chrysler's famous engineering.
- Sales, engineering, service and business-operation training at Chrysler Corporation Training Centers.
- Pre-tested merchandising aids and incentive plans. Factory advertising in your local market.

CHRYSLER

DO MORE BUSINESS



WITH AIRTEMP—

THE FORWARD LOOK IN AIR CONDITIONING



AIRTEMP DIVISION, CHRYSLER CORP.
DEPT. AA-10-58, DAYTON 1, OHIO

Please send me full information on an Airtemp franchise.

NAME.....

ADDRESS.....

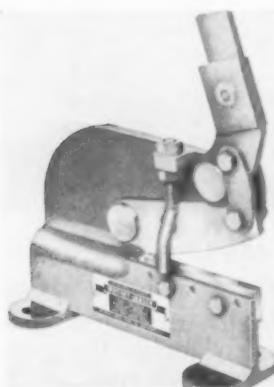
CITY..... ZONE..... STATE.....

EQUIPMENT DEVELOPMENTS

The latest information on manufacturers' developments is presented here with brief summaries of the applications of these products. For additional product information which is available, see this month's New Literature department

Bench Shear

LIGHTWEIGHT BENCH shear which cuts flat, angle iron, round and bar stock without changing dies or cutting blades—*Whitney Metal Tool Co., Dept. AA, 724 Forbes St., Rockford, Ill.* Mild steel capacities are $\frac{1}{8}$ in. angle iron, 10 ga flat stock, $\frac{7}{16}$ in. round bar cutoff and $\frac{3}{16}$ in. flat bar stock. Roller bearings at hinge points ease shearing operation.



Frame is formed from $\frac{1}{2}$ in. plate. Unit is $7\frac{5}{8}$ in. high, 10 in. long and 4 in. wide, with 30 in. handle. Shear weighs 18 lb. Bench mounting brackets and adjustable work hold-down are included.

Furnace Line

"COMMAND-AIRE" line of gas-fired basement and highboy furnaces with "Robo-trol" single control which switches year 'round systems from winter heating to summer cooling—*Bryant Mfg. Co., Dept. AA, 2020 Montcalm St., Indianapolis.* Furnace, designed to accommodate add-on air conditioning, features cast iron burner with slotted, individually-machined ports, which burns natural, manufactured or LP gases. Oversized mixer tube blends gas and air completely before it enters the burner. Other features are filter gage

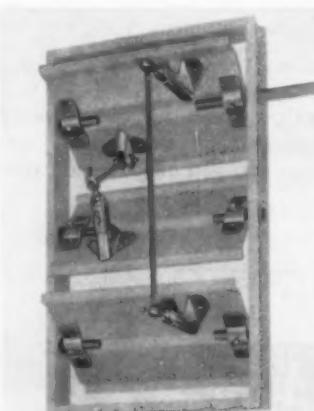
which raises sign when filters need changing; rubber-mounted, belt-driven centrifugal blower, diaphragm



valve and pilot. Valve can open only when pilot is burning properly. Gas tube connects valve to pilot so extra gas is sent to pilot flame as soon as valve opens to feed gas to main burners.

Damper Hardware

"BALL-O-MATIC" and "Oppo-Matic" damper hardware said to be self-aligning and non-binding, with stamped positioning marks—*Elgen*



Mfg. Co., Dept. B-5-AA, 41-34 39th St., Long Island City, N. Y. Hardware is made of heavy gage tubular

design with solid brass ball-jointed rod holder which is held in predetermined position by stainless steel spring. "Oppo-Matic" model, for use on opposed action dampers, has "Micro-Set" plate and smaller companion bracket. Both surfaces of hardware are serrated so plate can be locked securely into position. "Micro-Set" bears against shank of ball joint, preventing blades from opening more than 90 deg. Both models use $\frac{1}{4}$ in. rod, according to the manufacturer.

Furnace Vacuum Cleaner

MODEL JB 252 F furnace vacuum cleaner with redesigned motor head—*Pullman Vacuum Cleaner Corp.,*



Dept. P-AA, 25 Buick St., Boston 15. Unit has self-cooling, bypass, a-c or d-c $1\frac{1}{4}$ hp motor. Exhaust area has been increased to reduce back pressure and increase suction. Unit is available for 115, 64, 150, or 230-v; cycles from zero to 60. Multi-stage turbine fans are featured. Unit is available for wet or dry pickup. Capacity of container is 17 gal; $1\frac{3}{4}$ bu or 12 gal are recoverable. Unit is 31 in. high, 16 in. in diameter. Maximum water lift is 75 in. Tropical winding is available as an extra on special order.

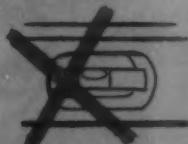
No chattering . . .

Unlike other thermostats, RIMSET does not chatter to cause "on-off" operation when vibration occurs.



No leveling . . .

Installation is easier . . . faster, and accurate operation is assured because leveling is not necessary.



No squinting . . .

The extra large stationary dial face with big numerals makes RIMSET today's easiest-to-read thermostat.



Just dial
the rim...
easiest to set...
easiest to read

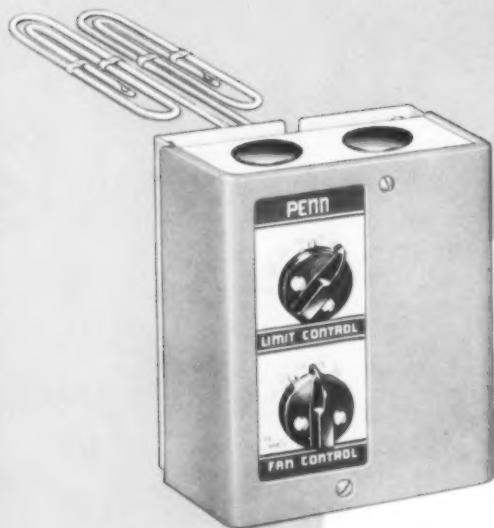
Only Penn's RIMSET provides so much accuracy, dependability, extra convenience and beauty . . . it has the features customers want and can't get with any other thermostat. And Penn's RIMSET is so versatile—with various interchangeable sub-bases available for 12 different heating and cooling jobs. On your next installation use Penn's RIMSET . . . the thermostat that helps close sales faster . . . and keeps service calls to a minimum!

PENN RIMSET THERMOSTAT

gives you more features
to make selling easier!



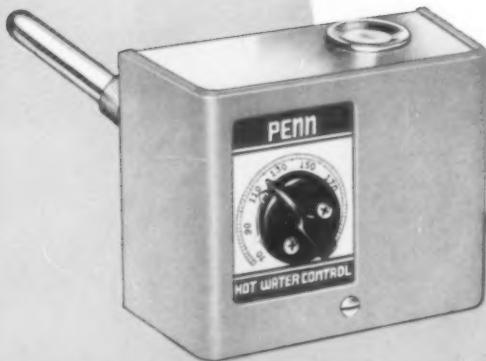
More profitable
news for you... 



Type 520 liquid expansion combination fan and limit control with calibrated dials for warm air furnaces.



Type 926 gas valve with straight-through flow and vertical self-cleaning seat. Pressure regulators and pilot lots available.



Type 442 safety limit or operating immersion control with "trigger-quick" response for hot water jobs.

You'll keep more profit with **PENN CONTROLS**

... because Penn automatic controls "stay on the job" longer! On any type of heating system, properly installed Penn controls with their precision accuracy and dependability always assure your customers of the better heating comfort you sell. It's the kind of trouble-free performance that creates better-satisfied customers . . . more sales and more profit for you. One job will convince you . . . specify and install Penn controls on your next heating job. Ask your burner manufacturer or wholesaler.



Oil burner stack switches either in single or two-unit models. All available for continuous or intermittent ignition service.

PENN CONTROLS, INC.

Goshen, Indiana

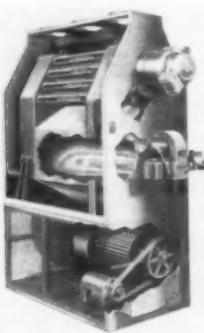
EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N.Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

equipment developments (Continued)

Direct Fired Heaters

LINE OF DIRECT fired heaters in capacities from 400,000 to 3,500,000 Btu with light or heavy oil burners, gas burners or combination oil and gas burners—*Arkos Mfg. Co., Div. of Arnold Kosarin Associates, Dept. AA, 7310 Woodward Ave., Detroit*. Newly formed division produces line which features diamond-shaped stain-



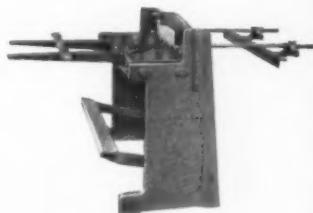
less steel combustion chambers with four-point "floating" suspension. Economizer tubes above combustion chamber are swaged into headers to eliminate stresses and buckling. Other features include radiation shields, integrated control panel and double-inlet, double-width blowers. Power burners are furnished with combustion air blower as integral part of burner, permitting independent combustion air adjustment and separate induced draft setting. Four models are available for floor mounting, horizontal mounting, vertical inverted mounting and transportable service. All are available with duct inlet and outlet connections with separate blower compartments for bypass systems.

Vapor Barrier Paper

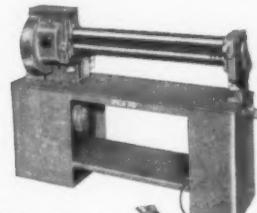
"PLY-BAR" reinforced, plastic-coated paper designed especially for vapor barrier and flashing applications—*Glas-Kraft, Inc., Dept. AA, Mill St., Lonsdale, R. I.* Paper consists basically of triangular-pattern glass reinforcing and is covered with asphalt-laminated polyethylene. Paper is de-

PEXTO SHEET METAL MACHINERY

POWER AND MANUALLY OPERATED Squaring Shears • Ring and Circle Shears • Rotary Slitting Shears • Brakes and Folders • Flanging Machines • Slip Roll Forming Machines • Grooving Machines • Turning, Burring, Wiring Machines • Crimping and Beading Machines • Double Seaming Machines • Lever Shears and Punches



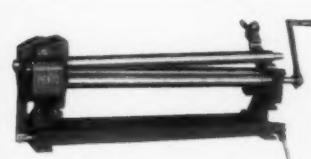
Foot squaring shear



Power slip roll forming machine



Ring and circle shear



Slip roll forming machine



Adjustable bar folder



Combination brake and folder



Double seaming machine



Combination rotary machine

also...
A Complete Line of
HAND TOOLS
and **STAKES**



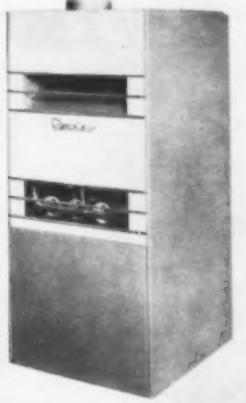
THE PECK, STOW & WILCOX CO. Southington, Conn. U.S.A.

A complete line of machines and tools for Sheet Metal Fabrication.

equipment developments

(Continued)

signed for heavy duty applications on large buildings, the manufacturer reports.



Sectional Furnace

"DIXIE AIRE" sectional gas-fired furnaces with increased blower capacity, designed for use in conjunction with summer air conditioning—*Peerless Corp., Dept. AA, 1853 Ludlow Ave., Indianapolis 7*. Line is in three models: 60,000 Btu, 1200 cfm; 85,000 Btu, 1600 cfm; and 115,000 Btu, 2000 cfm. Steel heat ex-

changer sections of airfoil design are located on 4½ in. centers with 2½ in. minimum clearance between sections. Burners are ribbon type; blowers are belt driven. Year 'round thermostat is included. Companion "Challenger" line is available with same inputs but lower cfm ratings and without chrome trim and year 'round thermostats.

Furnace Soot Remover

"CLEAN RIGHT" soot removing compound for oil- or coal-fired furnaces—*Miller Products Co., Dept. AA, 5615 S. Cedar St., Lansing, Mich.* Cleaner ignites at low temperature and produces enough heat to volatize catalysts and ignite the soot, allowing proper draft to circulate through furnace and furnish burning materials with proper amount of oxygen for combustion.

Plastic Skylights

"VANCOLUX" PANELS of lightweight, glass fiber-reinforced polyester mounted in extruded aluminum frames—*E. Van Noorden Co., Dept. AA, 126 Magazine St., Boston 19*. Non-corrosive and heat-resistant skylights are said to have K factor of 3.0. Standard sizes are available with integral curb and roof flange or without curb for over roof curb mounting. Skylights can be supplied in continuous lengths and widths up to 12 ft in curved or double-pitch constructions.

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Names and addresses of all these manufacturers.

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Normal editorial content of a regular issue assures immediate cover-to-cover attention.

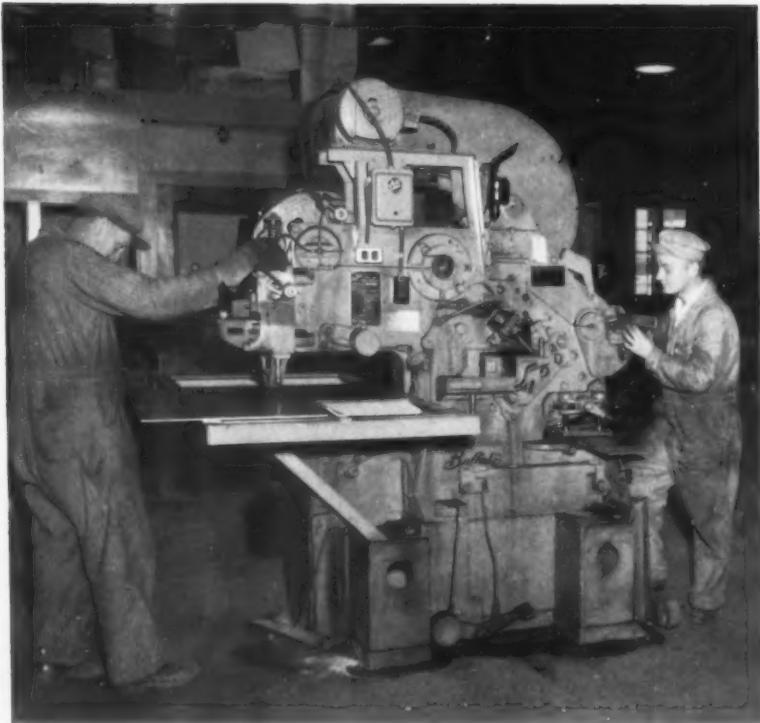
PLUS A COMPLETE SHOW SECTION previewing the International Heating and Air-Conditioning Exposition in Philadelphia. Contents: a listing of all exhibitors and their products, a guide to the displays, complete programs of the meetings.



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DRILLING

PUNCHING

SHEARING

BENDING

Wall Furnaces

OIL- AND GAS-fired wall furnaces rated at 61,000 and 75,000 Btu, respectively—*Perfection Industries Div. of Hupp Corp.*, Dept. AA, 1135 Ivanhoe Rd., Cleveland 10, O. Designed to fit into wall with only dec-



orative expanded metal grille showing, furnaces feature glass wool and aluminum foil insulation which directs heat inward and permits close clearances. Overall dimensions are 52 × 23 × 26 in. Front panels swing open for maintenance. Both models are thermostatically controlled. Gas burner is heavy cast iron alloy, designed to deflect flame outward over entire combustion chamber wall; oil burner has "Midget Pilot" (burner within a burner) to minimize overburning and underburning.

Unit Heaters

"MICRO-HEATERS" series of gas-fired unit heaters designed for rooms with low ceilings—*Hastings Air Control, Inc.*, Dept. AA, 3215 Leavenworth St., Omaha 5, Nebr. Small (22½ in. high) units have input ratings of 25,000 to 75,000 Btuh. Features are welded aluminized steel heat exchangers, stainless steel ribbon burners, fan delay switch, summer fan switch with pull cord and bottom access panel. Four-way air distribution louvers control pattern of warm air and prevent hot blasts of air in front of the unit, according to the manufacturer.

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equipment developments (Continued)

Air Hammer

"RAMEX" AIR HAMMER designed for sealing Pittsburgh and double lock seams on sheet metal ducts—*Duro-Dyne Corp., Dept. AA, Rte. 110, Farmingdale, N. Y.* Said to seal



seams on metal up to 16 ga, unit weighs 4 1/2 lb. Tools are interchangeable by means of "quick-change" chuck. Tools adapt hammer for drilling and chipping masonry, breaking rivets and chipping welds. Impact is controlled by operator's finger.

Gas-Fired Furnace

HEAVY GAGE, sectional gas-fired furnace in lowboy, highboy and counterflow models rated at 84,000 Btu output at bonnet—*Thermo-Products, Inc., Dept. AA, North Judson, Ind.* Units feature a multiple section heat exchanger with individual burner for each section, and 100 percent safety shutoff for all gases. Controls are factory assembled and wired, the company states.

Vacuum Cleaner

MODEL 101 industrial suction cleaner and blower, suitable for cleaning furnaces, air conditioning units and duct work—*Acc-Sycamore, Inc., Dept. AA, 448 DeKalb Ave., Sycamore Ill.* Unit has a 1 1/3 hp motor

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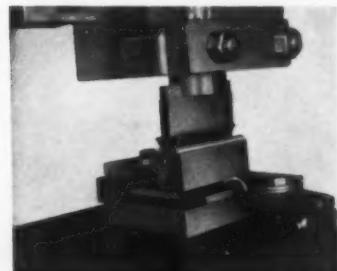
WILLIAM WALLACE COMPANY • BELMONT, CALIF.

equipment developments
(Continued)

mounted on baked enamel tank for dry pickup or stainless steel tank for wet or dry pickup. Mobile cleaner has 15 gal capacity. Motor can be detached and carried for blowing, vacuuming and spraying. Variety of attachments is available from the manufacturer.

Female Press Brake Die

"Di-ACRO Rol-Form" female press brake die with roll inserts which eliminate work marking and reduce die setup and changeover time—*O'Neil-Irwin Mfg. Co., Dept. AA, 501 Eighth Ave., Lake City, Minn.* Die can be used in any mechanical



or hydraulic press brake or punch press. Two hardened and ground, half-round inserts roll up and toward opening in die block as male die enters the material to be formed. Inserts varying in size from $\frac{1}{4}$ to 1 in. are available, with material capacities increasing correspondingly. Ram adjustments accommodate varying thicknesses and control degree of bend up to 60 deg. Up to 12 ft standard lengths of die are available for press brakes; shorter sections are available for punch press operations.

Air Purifier

"BREEZE" MODEL light duty cabinet air purifier for residences and office spaces—*Barnebey-Cheney Co., Dept. AA, Cassady at Eighth, Columbus 19, O.* Cabinet houses circulating fan, dust filter and activated charcoal filter. Model 8BB is $14 \times 14 \times 10$ in.; model 8BC is $22 \times 22 \times 12$ in. Lightweight supporting stand is op-



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equipment developments

(Continued)

tional for larger model. Unit can be plugged into any standard connection. Unit is designed to produce increased air circulation, more uniform temperatures, control of odors and other irritants and removal of dust and dirt.

Contour Saw

MODEL 30M band machine with speed range from 50 to 5200 fpm for friction sawing of light steel sheets—*DoAll Co., Dept. AA, 254 N. Laurel Ave., Des Plaines, Ill.* Machine is said to cut any shape as fast as operator



can feed sheets. Identical parts can be produced by cutting them from a stack of sheets. Unit has built-in blade-shear and welder for internal cutting. Disc-cutting attachment is included. Saw band can be turned 90 deg for cut-off work. Unit also cuts straps, channels, angles, insulation and plastics. Speed is selected on "job selector." Models are available with 30 and 16 in. throat depth.

Lowboy Furnaces

"SLEEKLINE" SERIES of lowboy gas-fired warm air furnaces—*Heil-Quaker Corp., Dept. AA, Lewisburg, Tenn.* BG series is in five models ranging from 80,000 to 200,000 Btuh input; EG series has five models rated at 80,000, 100,000 and 120,000 Btuh. Lower input models have belt or direct driven blowers. Featured are: sectionalized steel heat exchangers, stainless steel ribbon burners, filter gages, slip-joint casing construction, removable front panels, summer fan switch, full capacity blower motor designed to handle summer air conditioning.

Power Gas Burners

SERIES of power gas burners rated from 70,000 to 700,000 Btuh—*Hastings Air Control, Inc., Dept. AA,*

equipment developments

(Continued)

3215 Leavenworth St., Omaha 5, Nebr. Burners are guaranteed against backflash, pulsation and pilot outage. Featured are primary air adjustment for quiet, vibration-free operation; "Positrol" air switch to delay opening of gas valve until blower comes up to speed; and plug-in type 100 percent safety shutoff in case of pilot failure. Units are specifically designed for conversion of oil or coal furnaces to natural, LP or mixed gases.

Wall Furnace

"THRU-THE-WALL" wall furnaces in 20,000 and 30,000 Btu/h gas-fired models—Chattanooga Royal Co., Dept. AA, First and Delmar Sts., Chattanooga 6, Tenn. Outside air is drawn through two-way vent for combustion and waste products are exhausted to the outside. Blower is optional. Smaller unit requires 6 in. diameter hole in outside wall; larger unit requires 8 in. hole. Units are available with automatic wall thermostat, built-in thermostat or manual control. Safety pilots and sealed combustion chambers are featured.

High Velocity Air Valve

MODEL R high velocity air valve composed of gang operated neoprene vane sections, designed to provide positive control of velocities and pressures and assure linear control of air volume—Barber-Colman Co.,

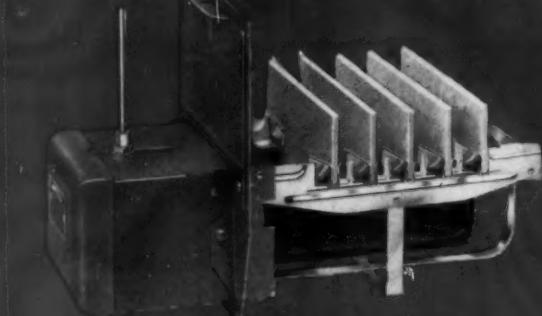


Dept. 766-AA, Rockford, Ill. Designed for use in variety of applications, valve can be used in single duct systems to control velocities and balance the system, or in double duct applications to mix hot and cold air and control velocities, according to the manufacturer.

Tank Fill Alarm

"KING" COMPRESSION lock or union connection fill alarms designed for installation on all types of new or old fuel tanks—Oil Equipment Mfg. Corp., Dept. AA, 169 Derby Ave., New Haven, Conn. Compression lock unit does not require threading or resizing of vent pipe. Series 800 union connection units are designed

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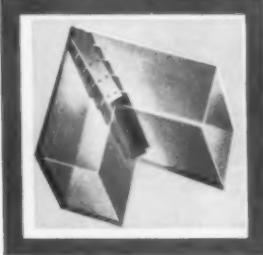
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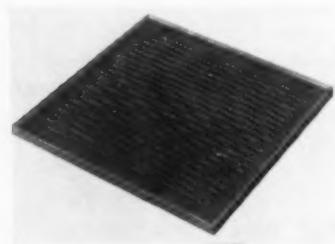
equipment developments

(Continued)

for installation on tanks where possibility of breaking lines indicates need for union connection. Both units emit whistling sound when tank is filling; when tank is filled to safe capacity level, whistle stops.

Metal Air Filter

"TWENTY-YEAR" all metal air filter with copper media or core material having "air scoop" construction—*Viking Air Products, Dept. AA, 5601 Walworth Ave., Cleveland 2, O.* Media does not require coating and



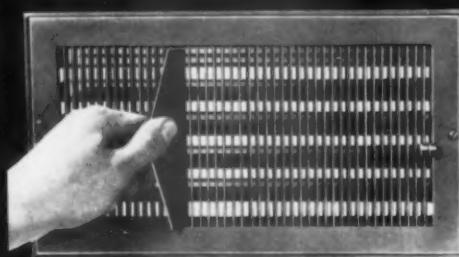
can be cleaned with household vacuum cleaner, the company states. Corrugated aluminum entry grid holds media firmly in place and permits it to "depth-load" so filter remains efficient longer. Back of filter is supported by corrugated aluminum screen; edges are precision formed aluminum channel.

Horizontal Furnace

"COMET" SERIES 581-584 horizontal oil-fired furnaces with lightweight unbreakable refractory fibers designed to absorb sound and insure low heat conductivity—*Thatcher Furnace Co., Dept. AA, Centre St., Garwood, N. J.* Cold air return has built-in filter rack. Eye hangers are installed. Cabinet is insulated by glass fiber with aluminum foil facing. Unit has 84,000 Btu bonnet output, 105,000 Btu input. Two adjustable air bands control air-oil mixture. Direct drive blower is standard; speed control or belt drive are available. Overall dimensions of the unit are 66½ × 23 × 25 in.



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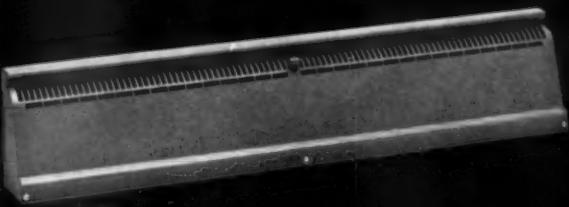
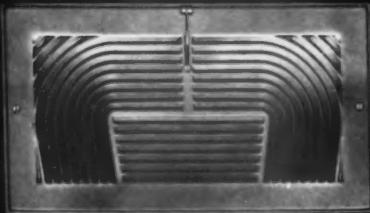


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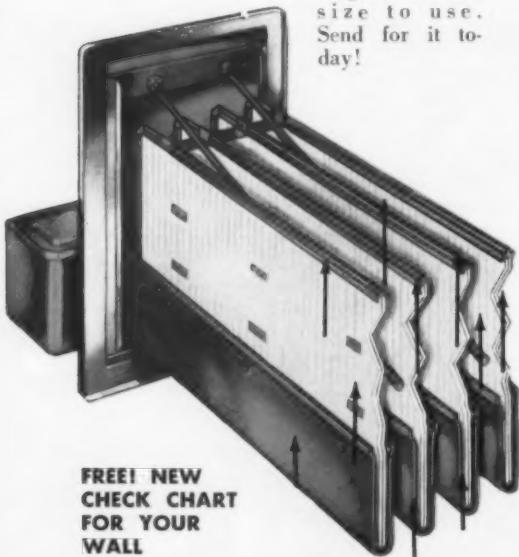
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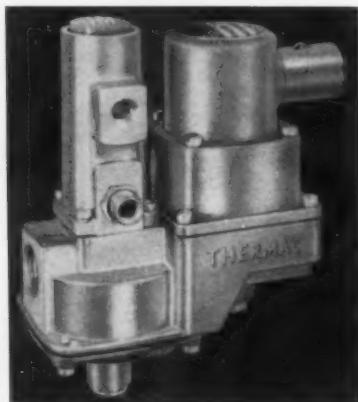
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**equipment developments***(Continued)***Combination Control**

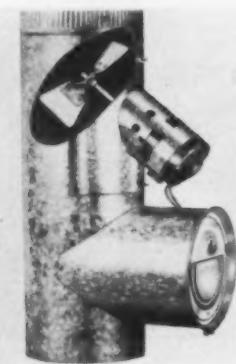
SERIES SLS combination control which includes regulator, safety, automatic main gas control valve and 100 percent pilot shutoff—Thermac Co., Dept. AA,



14296 E. 6th St., Corona, Calif. Unit is designed to fit most sizes of furnaces. Manual reset is available in conjunction with automatic main gas valve, the manufacturer reports.

Draft Inducer

"SHUR-FLO" draft inducer for oil-, coal- and gas-fired furnaces—Walker Mfg. and Sales Corp., Dept. AA, 1711-1717 Penn St., St. Joseph 1, Mo. Unit consists of motor driven fan mounted on flue pipe with stainless steel shaft extending inside the pipe carrying a stainless steel propeller type fan blade. It creates and im-



proves draft in flue or chimney when natural draft is deficient or chimney is poorly constructed. Designed for maximum displacement and feathering action of blades, unit offers no resistance to natural draft when at rest. Non-corrosive, self-cleaning unit is said to inspire draft up to 0.08 in. W. G. It can be installed vertically, horizontally or at angle.



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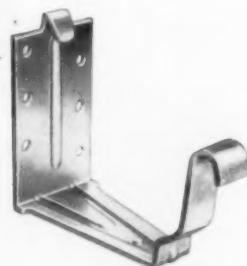
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equipment developments (Continued)

Aluminum Gutter Hanger

TYPE K ALUMINUM box gutter hanger with aluminum snap strap—



Berger Bros. Co., Dept. AA, 229-237 Arch St., Philadelphia 6, Pa. Hanger is nailed to fascia to hold Style K and OG gutter snugly. It is in 4 and 5 in. sizes. Styled similar to steel type K hanger, aluminum model has extra sturdy embossments designed to provide extra strength, the company states.

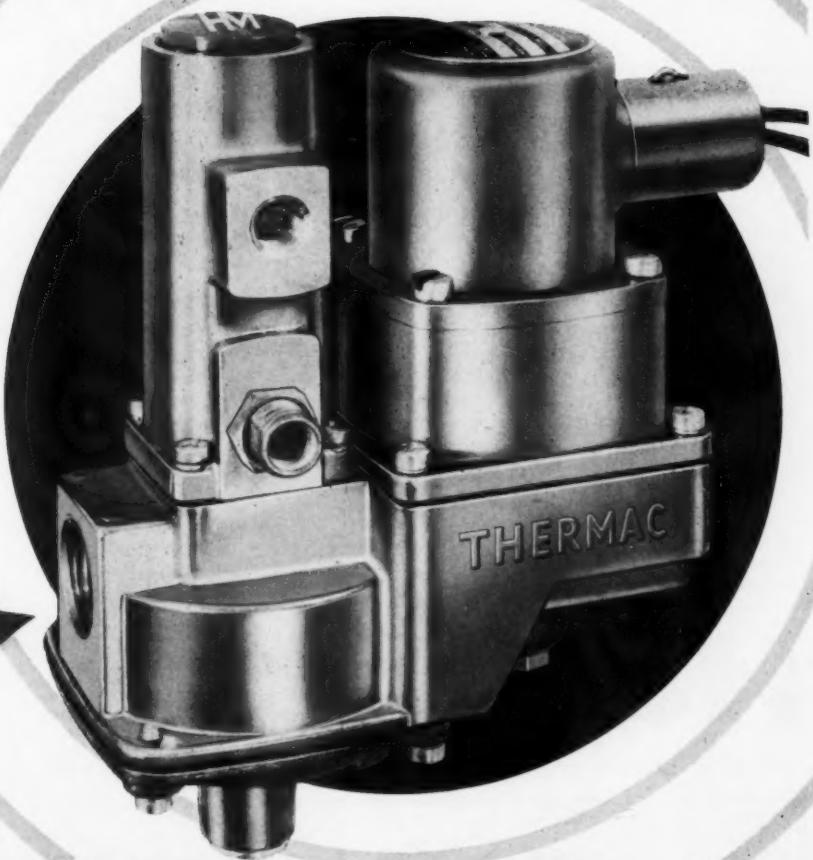
Summer Air Conditioner

TYPE ACR air cooled condensers and types VR and HR enclosed cooling coils in $7\frac{1}{2}$ ton capacities—Halstead & Mitchell, Dept. AA, Bessemer Bldg., Pittsburgh 22. Condenser cabinet contains condenser coil, blower and heavy duty fan motor; weather-proof cabinet has space for installation of compressor, receiver and necessary controls for complete package. Direct expansion cooling coils are designed for use with furnace, operate with refrigerants 12 or 22. Type VR coils are in insulated housings and are designed for installation in furnace plenum; HR coils can be installed in horizontal supply duct. All coils feature "Turbo-Flo" fin with embossed pattern for rigidity and increased surface. Embossed pattern is said to boost heat transfer up to 15 percent while keeping the pressure drop low.

Vacuum Cleaners

LINE OF furnace vacuum cleaners featuring adjustable toggle clamp—

For the Mass Market in the Heating Field!



COMBINATION CONTROL

REGULATOR • SAFETY • AUTOMATIC MAIN GAS CONTROL VALVE

Safe Lighting With or Without 100% Shut off.



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THERMAC

HM COMPANY

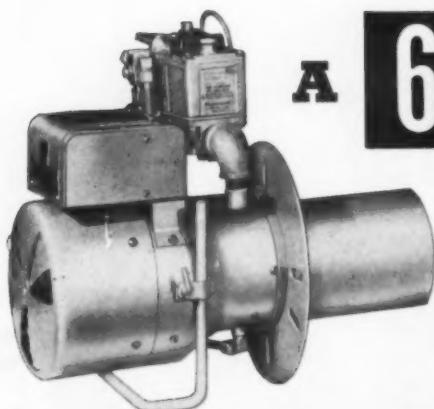
14296 East Sixth Street,
Corona, California. REdwood 7-3511

In a carefully calculated design based on 25 years gas control experience, THERMAC combines in this three-in-one control every feature important to the appliance builder, the dealer, and the customer. Identical in performance and capacity to the now universally accepted SLS-100, it is ideal where space below the control is limited. The unit consists of a regulator, quiet automatic main gas valve and a 100% pilot shut off when required. A manual reset is available in conjunction with automatic main gas valve. Every component is long proven and well accepted in the gas appliance field.

Drawings, prices and samples of the SLS-120 series are now ready for manufacturers interested in reducing the over-all cost of gas control assemblies.

Write, wire or telephone for immediate action.

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A **6"** FLAME

at
210,000
BTU'S

The sooner a gas flame completes combustion, the hotter and more efficient it becomes.

THE NEW Barber TURBO-HEAT
Power Gas Burner produces a flame only 6" long at 210,000 BTU's. No other burner is as efficient as the TURBO-HEAT.

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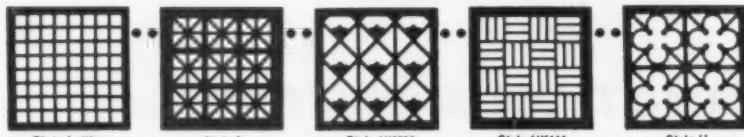
THE

Barber

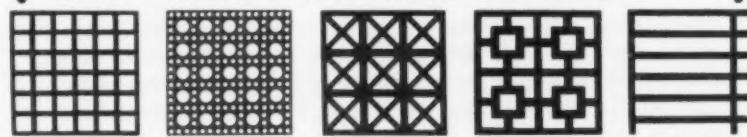
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Dept. A, 1052 East 134th Street, Cleveland 10, Ohio

H & K Perforated Metal Grilles and Decorative Sheets

for ventilation, concealment and acoustical purposes



Plain Lattice Style L Style HK720 Style HK111 Style U
 Perforated metal grilles can be ordered from the wide selection of patterns available at H&K. Grilles are made to your exact specifications, in the kind and thickness of metal, size, shape, finish and margins.



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 Decorative perforated metal sheets (in lighter gauge steel) are carried in stock for prompt shipment from H&K warehouses. For illustrations of patterns and ordering information, send for H&K Stock List Brochure.

SEND FOR H&K GENERAL CATALOG for information about H&K perforated metals including louvers (fixed and lip slot).

THE **Harrington & King....**
PERFORATING CO., INC.

Chicago Office and Warehouse
5649 Filmore St., Chicago 44, Ill.

New York Office and Warehouse
114 Liberty St., Dept. AA, New York 6

equipment developments

(Continued)

Pullman Vacuum Cleaner Corp., Dept. P-A4, 25 Buick St., Boston 15. Feature is included on all new models of existing line. Clamp is adjustable with screwdriver and wrench. It is



made of heavy gage steel with solid rivets, has heavy coat of nickel and chrome, barreled finish and burr-free edges. Positive hold-down clamp securely locks motor head onto the cannister, the company states.

Gas-Fired Furnaces

"SLEEKLINE DELUXE" BG series of lowboy gas-fired warm air furnaces in five models ranging in capacity from 30,000 to 200,000 Btuh input—**Heil-Quaker Corp., Dept. AA, Lewisburg, Tenn.** "Economy" EG series is in five models with 30,000, 100,000 and 120,000 Btuh capacities, with belt driven or direct drive motors. Features of both models include sectionalized heat exchangers, stainless steel ribbon burners, filter gage, slip-joint casing construction, removable front panels which can be painted to desired color by home owner, and summer fan switch. Full capacity blower is designed to accommodate add-on summer air conditioning.

Spot Panel Welder

HIGH SPEED spot panel welder which uses low heat in unusually small area, designed for spot welding from one side of work without distortion or backup—**Schott Metal Products Co., Dept. AA, 2225 Lee Rd., Akron 6, O.** Welding rods, in 1/16 and 5/64 in.

“got a good name...

this new *fan and limit control**. Ought to be worth something in our pitch to the field. Gives us a quality story... and the outfit's got branch offices from here to the DEW line. This is something we can sell to our key distributors. These guys know what a strong field service organization means in a pinch. Won't cost us any more than the one we're using now—so let's give them a try on the next run. Better get off a bulletin to our field men tomorrow.

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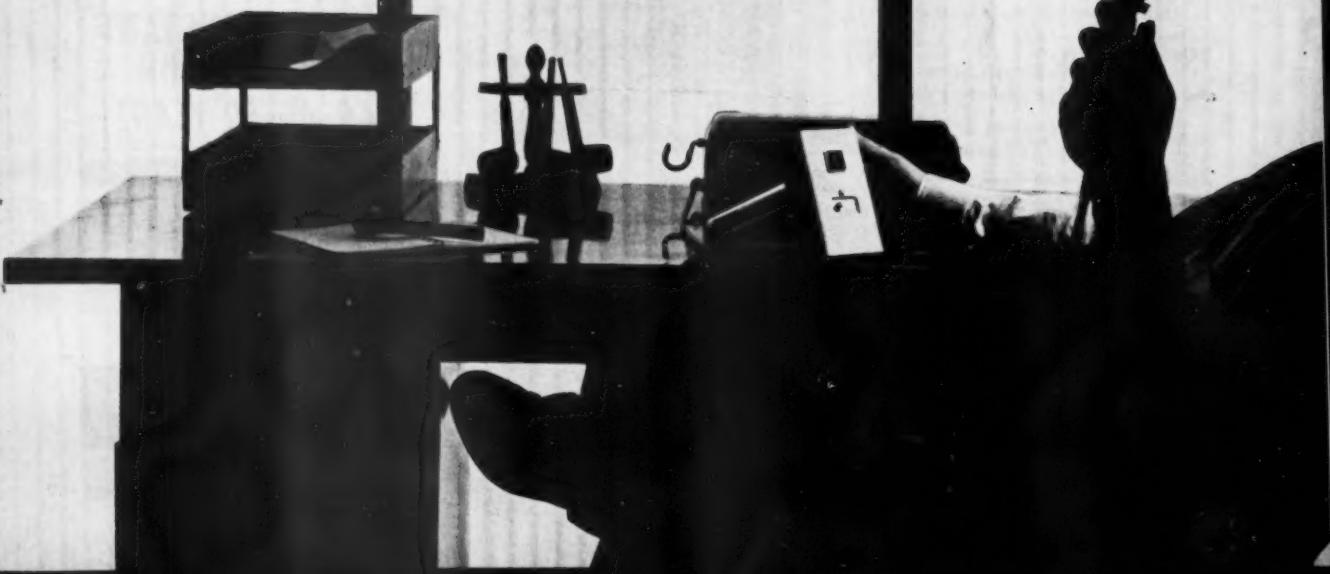
* The General Controls L-44 is available in 3 models: *fan control*, *limit control*, and *combination fan and limit control*. Gives you competitive price advantages, famous-name backing, and 42 factory branch offices. Write today for full information, or check the yellow pages for your nearest factory branch office.



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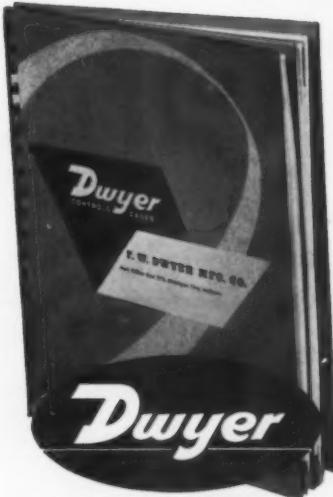
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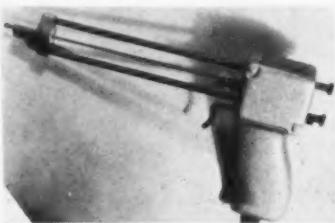
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City _____ Zone _____ State _____

equipment developments

(Continued)

diameters, are coated with powdered iron with starting tip said to arc immediately on contact with work. Welder is designed for use with any



welding machine (a-c or d-c) of 125 amps or more rating. Buckling of panels is said to be minimized.

Soldering Paste

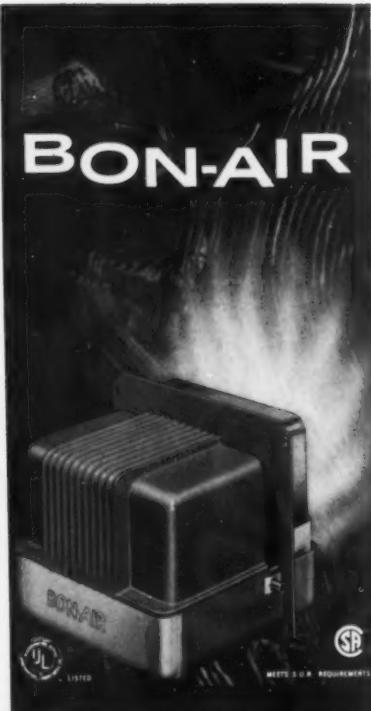
"PARSOL PASTE" dehydrated soldering paste for torch soldering as well as iron soldering—Farrelloy Co., Dept. AA, 1258 N. 26th St., Philadelphia 21, Pa. Paste contains increased amount of fluxing agent. Chemical increases fluxing action without oxidizing under higher heat of a torch. Dehydration is said to eliminate sputter or boiling.

Locking Wrench

"CRESTOLOCK" wrench with locking device which permits setting opening at various points within the capacity of the wrench—Crescent Tool Co., Dept. AA, 230 Harrison St., Jamestown, N. Y. Pair of stainless steel



spring leaves engage adjusting knurl at right angles and fit into serrations to stop knurl from turning. Lock can be operated from either side by thumb. Jaws contain scale markings. Damage to lock has no effect on operation of the wrench. Wrenches are available in 8, 10 and 12 in. sizes, chrome plated with stainless steel locking device.



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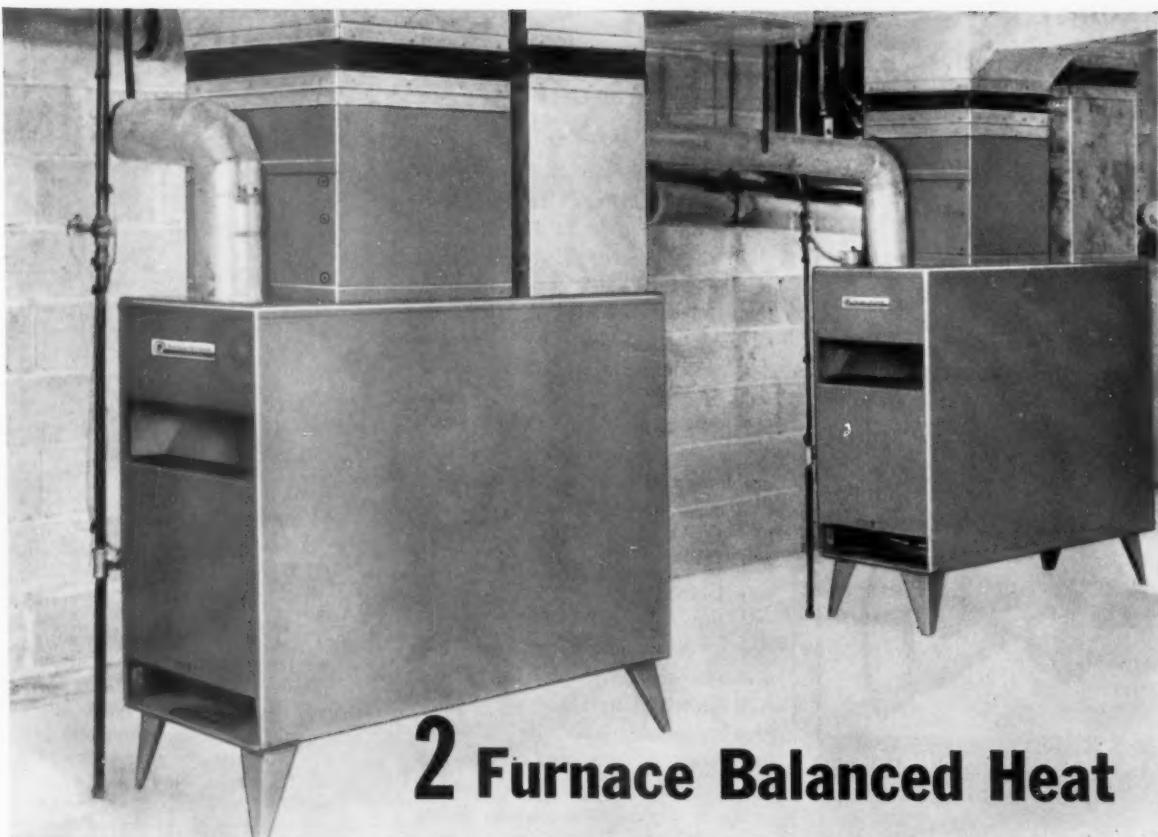
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2 Furnace Balanced Heat

SELL IT FOR MORE... INSTALL IT FOR LESS

A two-furnace installation assures greater comfort and economy of operation . . . yet may actually cost less than a single-unit job. The cost for two small furnaces is little if any more than a single large unit. Savings on installation can make up any difference in equipment cost, because duct work is simplified . . . balancing easier . . . call-backs reduced. You can definitely sell it for *more* . . . it may cost you *less*.

BASEMENT FURNACE WITH LEGS: This exclusive American-Standard feature really saves money on installation . . . no concrete base to pour . . . no grouting necessary . . . no leveling problem with easy adjustment screws. It's an installation with *dry-bottom* appeal that your customer will pay *more* to own . . . and will cost you *less* to install.

THE EVAPORATOR CABINET costs little to install when the heating job goes in . . . practically insures a profitable cooling job later. A furnace installation "ready-for-air-conditioning" sells for *more* now. You can install the summer air conditioning for much *less* later.

Contact your American-Standard Air Conditioning Division Distributor for complete details . . . today.



TOOLS TO HELP YOU SELL

NATIONAL MAGAZINE ADVERTISING TO BUILDERS: a continuing series of ads featuring well known builders. Tells why the visual appeal of Two-Furnace Balanced Heat helps sell more houses.

BALANCED HEAT BROCHURE tells the complete consumer story on two-furnace zone control. Ideal for model home promotions, or for your own sales to builders or consumers.

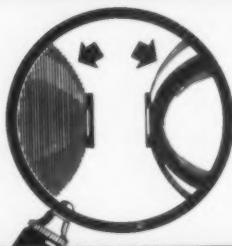
FURNACE WITH LEGS FOLDER shows how the exclusive American-Standard Furnace with legs keeps its bottom dry even in flooded basements . . . makes floor cleaning easier.

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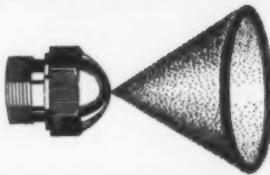


AMERICAN-STANDARD
AIR CONDITIONING DIVISION

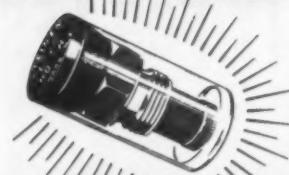
WHY STEINEN?



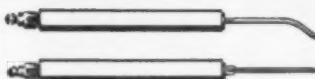
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are tested for volume, angle and spray pattern assuring you micro-atomized spray for more intensified heat.



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Compare this outstanding line. Write for complete information.

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new literature . . .

Air Conditioning

"SUMMER AIR CONDITIONING," by S. Konzo, J. Raymond Carroll, and Harlan D. Bareither of the University of Illinois, was written specifically to provide a text and a reference for those interested in learning the fundamentals involved in residential heating and summer air conditioning. The book, prepared especially for the purposes of the United States Armed Forces Institute, contains problems and exercises that enable a student to test his understanding of the material presented. No problem included calls for more than a common knowledge of arithmetic.

A feature of the book is a discussion of the psychrometric chart and a step-by-step explanation of its use. Also explained is the curve form of presentation of data, which the authors state is more useful than the tabular form because it is possible to see at a glance the way in which the weight of water vapor in air can increase as the temperature increases. Also, by means of the curve it is possible to determine weights of water vapor at points intermediate between the plotted points.

Of particular interest are the chapters on Noise Control for Air Conditioning Systems; Designing Air Duct Systems and Selecting Equipment; Heat Gain in Houses; Operating Cooling Equipment; Duct Systems for Carrying Air; and Distributing Air in Rooms. The book contains 554 pages, is priced at \$7.50—*Windsor Press, Dept. AA, 200 E. Ontario St., Chicago 11.*

Hand Tools

CIRCULAR illustrates and describes one piece forged hammers, axes and hatchets, all featuring leather grips designed to absorb shock. Weights and catalog numbers are given for curved and straight claw, ball peen, tinner's setting and tinner's riveting hammers—*W. A. Whitney Mfg. Co., Dept. AA, 636 Race St., Rockford, Ill.*

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The Perfect Cap for all Chimneys, Flues and Ventilators.

You'll do a volume business with Draft King when customers learn of its money-saving benefits.

Draft King turns flue gases into perfect heating combustion—eliminates chimney clogging soot and costly fuel waste. No moving parts—nothing to wear out. Made of either all-weather galvanized steel or aluminum.

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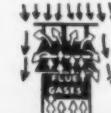
**Stops ALL
draft
troubles!**



UP DRAFTS



SIDE DRAFTS



DOWN DRAFTS

Manufactured by
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HEIL

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DOLLAR VALUE TESTED

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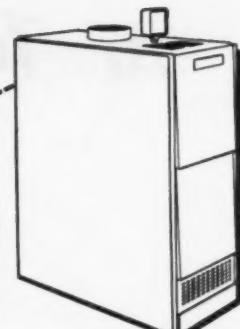
Heil New Sleekline furnaces — greatest gas heat advance in Heil history — designed with you in mind — Greater Profit — Less Service — Easiest Installation — the most efficient heating package in its field.

Here's proof that dollar for dollar you cannot make a better investment for profit than the New Heil Sleekline Deluxe and Economy models.

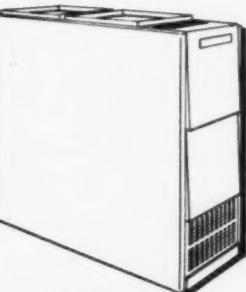
Check these easy selling, high profit, exclusive Heil features:

- 1000 port stainless steel ribbon burner.
- Sub-sonic king-size blowers.
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Write Heil-Quaker Corporation today for full details on the more-for-your-money Heil franchise.



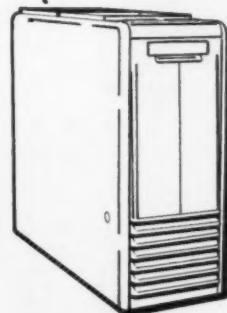
6 Gas-Fired
Boiler-Burner Units
(BTU range:
70,000 to 200,000)



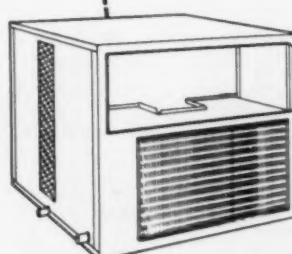
14 Gas-Fired
Winter Air Conditioners
(BTU range:
60,000 to 200,000)



6 Oil-Fired
Boiler-Burner Units
(BTU range:
93,000 to 252,000)



13 Oil-Fired
Winter Air Conditioners
(BTU range:
84,000 to 224,000)



15 Central Air Conditioners
Self-contained, remote and
water cooled
(BTU range: 20,000 to 60,000)

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Now...The Finest Insulation Duct Tape Ever Developed!

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- Easy to use . . . applies smoothly and evenly.
- Saves time . . . becomes "tacky" in 7 to 12 seconds. (Remains "tacky" over an hour.)
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new literature

(Continued)

Modernization Sales Aid

CONSUMER BOOKLET entitled "How to Get the Best from Your Heating System" (12 pages) explains and diagrams the various types of heating systems, tells how they function and describes the equipment used for each. Included are tips to the home owner on how to make sure his heating system is providing the maximum comfort. The booklet also points out to the consumer that his heating system may be outdated, thus opening the door for air distribution modernization sales.

Featured is a section on thermostats which explains the importance of proper thermostat location and details the factors that add up to a good or a poor location. Another section explains the advantages of zone control for problem area heating. Six typical hard-to-heat areas described are: rooms over a garage, finished basements, rooms with large windows, spread-out floor plan, living and sleeping areas, and split level homes.

The booklet also brings up the question, "What about complete year 'round air conditioning?" and explains how this convenience may be added to an existing heating system at a reasonable cost. A final section on "What to do if your system fails" includes a warning to the home owner on what not to do in the event of system failure. (Don't try to make internal thermostat adjustment, don't tamper with the limit controls, don't change blower speed or combustion air setting.)—Minneapolis-Honeywell Regulator Co., Dept. AA, 2726 Fourth Ave., South, Minneapolis 8, Minn.

Stainless Steel

THIRTY-TWO PAGE BOOKLET gives information on special purpose stainless steel sheet and strip grades. Included is data on physical properties, corrosion and heat resistance, surface finishes, fabrication, maintenance, and cleanability—Washington Steel Corp., Dept. AA, Washington, Pa.

YOU are invited to read and use AMERICAN ARTISAN

You who are making your livelihood from warm air heating, residential air conditioning or sheet metal contracting can best use the practical helps published in American Artisan each month.

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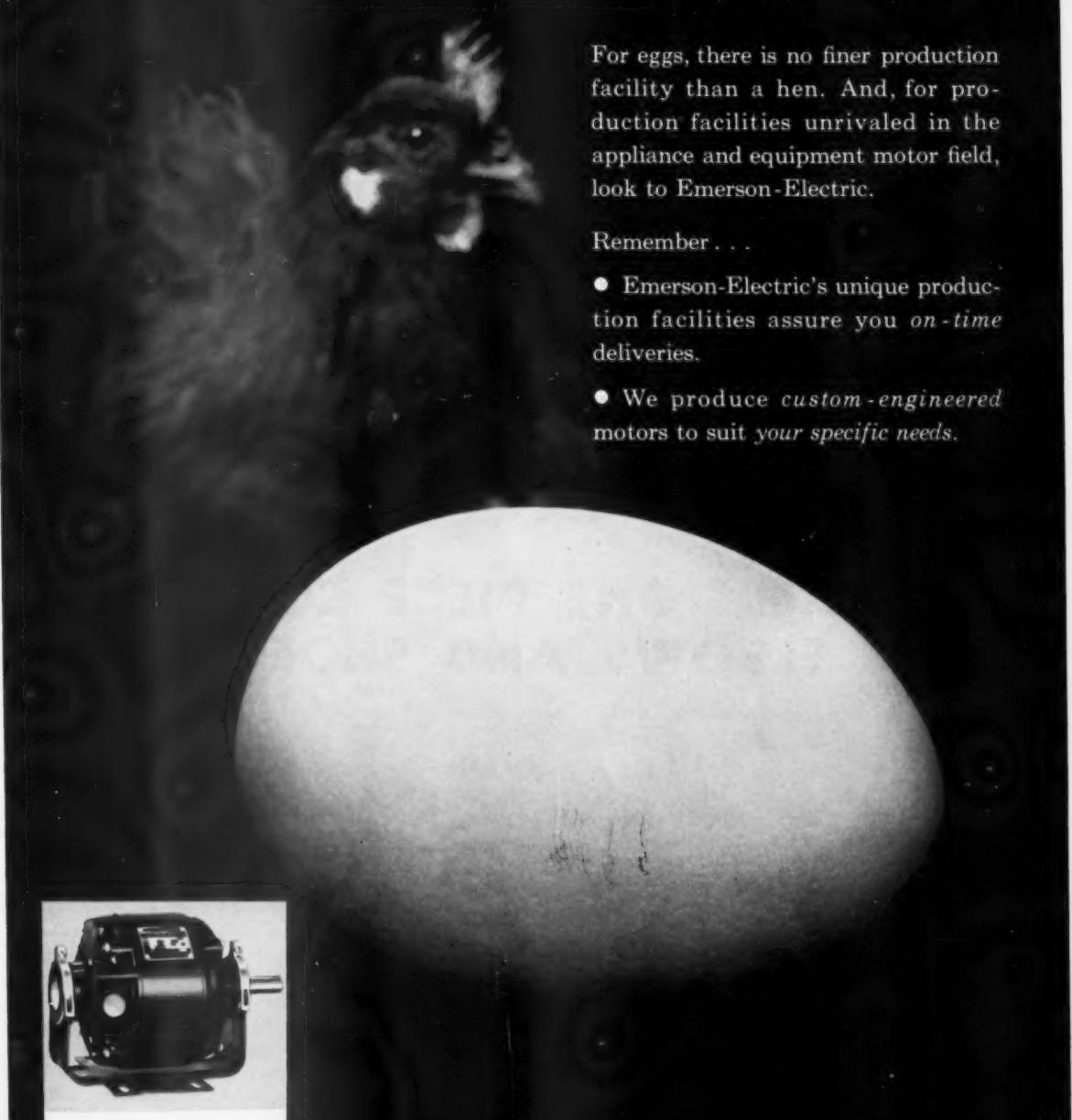
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Business . . .

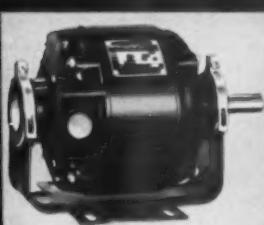
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For eggs, there is no finer production facility than a hen. And, for production facilities unrivaled in the appliance and equipment motor field, look to Emerson-Electric.

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Heating and Cooling Equipment

CATALOG PAGES give information on: 1) gas-fired horizontal furnaces; 2) gas-fired vertical and counter-flow furnaces; and 3) residential and commercial air conditioners. All equipment is illustrated. Specifications are included. Also available are newspaper mats, electrotypes, reproduction proofs, glossy photographs, and envelope inserts—*Chattanooga Royal Co., Dept. AA, Chattanooga 6, Tenn.*

Air Purifier

"THE ACTIVATED CHARCOAL STORY" describes the manufacturing processes involved in making activated charcoal and explains how it has been developed to meet modern air purification requirements. Included are suggestions on how to use activated charcoal in the home and how to restore charcoal to its original strength—*Barnebey-Cheney Co., Dept. AA, Cassady at Eighth, Columbus 19, O.*

Heat and Smoke Relief Unit

CIRCULAR describes "Pyrojector" automatic heat, smoke and explosion relief unit designed to open auto-

matically when fire or explosion occurs, venting heat, smoke and explosive forces up through the roof instead of spreading them out across a building. Photographs and diagrams show construction features, text explains details of operation—*The Swartwout Co., Dept. AA, 18511 Euclid Ave., Cleveland 12.*

Double Duct Mixing Units

"UNI-FLO" DOUBLE DUCT MIXING UNITS with self-contained constant volume control are described in Catalog F-8753. Units are available in octopus, open end, and integral diffuser types, thus can serve one or a series of diffusers. Temperature control and volume regulation are treated as separate functions—*Barber-Colman Co., Dept. AA, 1606 Rock St., Rockford, Ill.*

Heat Reclaimers

DATA SHEET covers UL approved heat reclaimers for use with coal, oil or gas fired heating systems. The unit is completely factory assembled and wired for year 'round operation, features corrosion-resistant heavy gage construction. Installation is accomplished by removing 12 in. of smoke pipe, pushing in the stack heater and plugging into an electrical outlet—*Safety Stack Heater Inc., Dept. AA, 1812 Gormly Ave., Merrick, L.I., N.Y.*

DIECKMANN ONE PIECE CONDUCTOR ELBOWS AND SHOES



This Emblem of Quality and Gauge of Material is Stamped in each Elbow and Shoe.

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Our complete line is available in 28, 26, 24 Gauge Galvanized Steel, Copper Bearing Steel, Armco Ingot Iron, all Hot-Dipped—Galvanized after formation. Stainless Steel, 1X 40# Terne, Copper, Lead Coated Copper, Zinc, Aluminum, Mill or Embossed Finish. Bonderized-Galvanized Elbows and Shoes, ready for painting. ORDER ANGLE BY NUMBER OR DEGREE.

FREE Wall Chart—Illustrated 21" x 27" describes complete line . . . write for Your Copy.

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Cost conscious plumbing and heating contractors rely on fast installing AMERIVENT double-wall gas vent pipe. They know that for approved venting of water heaters, furnaces, boilers and space or wall heaters, sturdy lightweight AMERIVENT installs quicker with less labor time.

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America's finest double-wall gas vent for residential and commercial use.

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Dura-Vent Tops are engineered for maximum efficiency, smart appearance, and ease of installation. They are scientifically designed to help—rather than hinder—draft action. Couplings are precision tooled for safe, sure, double-locked installations. Dura-Vent tops them all in appearance, too—complements even the most expensive homes.

Two, big, modern plants and eight, completely stocked warehousing points assure you of prompt, reliable service to any area. Dura-Vent pipe and fittings are available in all sizes—designed and engineered for any architectural specification. Listed by Underwriters Laboratories.

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Factory & Western Sales Office
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Redwood City, California
Factory & National Sales Office
1400 W. Ormsby Ave.
Louisville 1, Kentucky

new literature

(Continued)

Fill Signal

MODEL D "WHISTLER" FILL SIGNAL is described in an illustrated, two color data sheet. According to the company, the signal is light in weight, compact in design, can be installed quickly and easily. Installation photo is included—*Applied Mechanics Co., Dept. AA, 381-389 Congress St., Boston 10.*

Insulation Adhesives

BULLETIN I-C 58 contains information on insulation adhesives, weatherproofing, coatings, vapor barriers and sealing compounds. Included is data on applications, properties, temperature ranges, and coverage per gallon—*Insul-Coustic Corp., Dept. AA, 42-23 54th Rd., Maspeth 78, N. Y.*

Heating, Air Conditioning Controls

AUTOMATIC CONTROLS CATALOG NO. 26 (52 pages) describes and illustrates controls for heating, ventilating and air conditioning systems. Included is information on electric thermostats, pressure controls, humidistats, motor-operated valves, temperature regulators, motor operators, electronic controls, control centers and accessories. Operational and application data is given for each control component—*Barber-Colman Co., Dept. AA, 1300 Rock St., Rockford, Ill.*

Aluminum Stud Caps

FORM 8-437 describes aluminum stud caps used in installation of insulation, structural panels, acoustical material and other soft, bulky materials on metal surfaces. Photographs illustrate installation procedures and drawings provide dimensional data for both stud and cap. A companion sheet (Form 8-437A) gives test report data—*Huck Mfg. Co., Dept. AA, 2480 Bellevue Ave., Detroit 7.*

Gas, Arc and Resistance Welding

SECTION II OF THE WELDING HANDBOOK contains information on gas, arc and resistance welding processes. The book is divided into 13 chapters, each with a comprehensive bibliography and its own table of contents. Processes of a similar nature are grouped together and followed by a chapter describing the various types of equipment and accessories available. The Welding Handbook has been divided into five sections, and one section will be published each year. When the five volume edition has been completed, Section I will be revised again. Each volume is priced at \$9—*The American Welding Society, Dept. AA, 33 W. 39th St., New York 18.*

**Humphrey Re-writes the
Heating Rule . . . to Help
Dealers Beat Competition
and Still Make a Profit!**

NEW
Humphrey
Multi
Directional
GAS UNIT HEATER

**Gives Better Heating
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On job after job, heating contractors are cutting the cost of the original installation yet giving better heating service, by using Humphrey MD gas unit heaters.

In high-ceiling rooms, it is possible to provide the required temperature with smaller or fewer heaters because the top mounted fan utilizes 80% of the wasted ceiling heat. Actual tests have proven fuel savings of 15.38%!

In rooms of normal or low ceiling height, a single large MD unit with Multi-Directional heat discharge can frequently be used, in place of several smaller spaced-out units of conventional type.

Where several heaters are required, they can often be set snugly together, in a single battery of two, three or four units using the same piping, wiring and venting.

Why not find out how you can cut your heating estimates with the MD — the heater with the top-mounted fan, that circulates warm air *four ways* at the same time? Write for eight-page brochure and Application Handbook.

GENERAL GAS LIGHT COMPANY

KALAMAZOO, MICHIGAN

Blower Wheel Housings, Inlet Rings

SHEET METAL HOUSINGS for blower wheels are described in bulletin H-58. Three pages of tables give dimensions of housings for 22 standard wheel diameters from 3-27/32 to 15 inches. Also being offered is bulletin I-58 covering inlet rings for blower wheels. Listed are sizes available for both Type R industrial and "Blastaire" blower wheels—Revcor Inc., Dept. AA, 251 Edwards St., Carpentersville, Ill.

Gas Regulators

LOW PRESSURE GAS REGULATORS for commercial heating equipment are described in bulletin No. S-1012 (six pages). Included are a pressure drop and capacity chart, pressure drop graph, typical performance curves, operating limits and construction data. Also described are rubber seat poppet-type pilot regulators and zero governors—Maxitrol Co., Dept. AA, 12200 Beech Rd., Detroit 39.

Heating, Air Conditioning Equipment

THIRTY-TWO PAGE CATALOG contains specifications and dimensional diagrams for warm air furnaces, winter

air conditioners, central residential and small commercial summer air conditioners as well as year 'round air conditioners. Included is information on basement, utility, counterflow and horizontal gas and oil-fired winter air conditioners; gas-fired and all fuels gravity furnaces; gas and oil-fired combination year 'round air conditioners with both water and air cooled summer air conditioning equipment; air cooled condensing units; self contained air cooled air conditioners; water cooled commercial packaged air conditioners; and water cooled central residential units for both add-on and blower equipped application—American-Standard Air Conditioning Div., Dept. AA, 40 W. 40th St., New York 18.

Portable Brake and Bar Fold

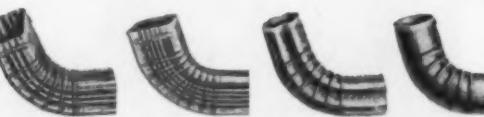
FOLDER describes Model 100 portable brake and bar fold. According to the company, use of the brake eliminates numerous trips back to the shop since it enables installers to fabricate "extras" needed right on the job. Illustrations show typical shapes which may be fabricated—Fayette Mfg. Co., Special Products Div., Dept. AA, Morenci, Mich.

Tubeaxial Fans

SERIES 300 TUBEAXIAL FANS are described and illustrated in catalog 1110-B. Features include "in-line"

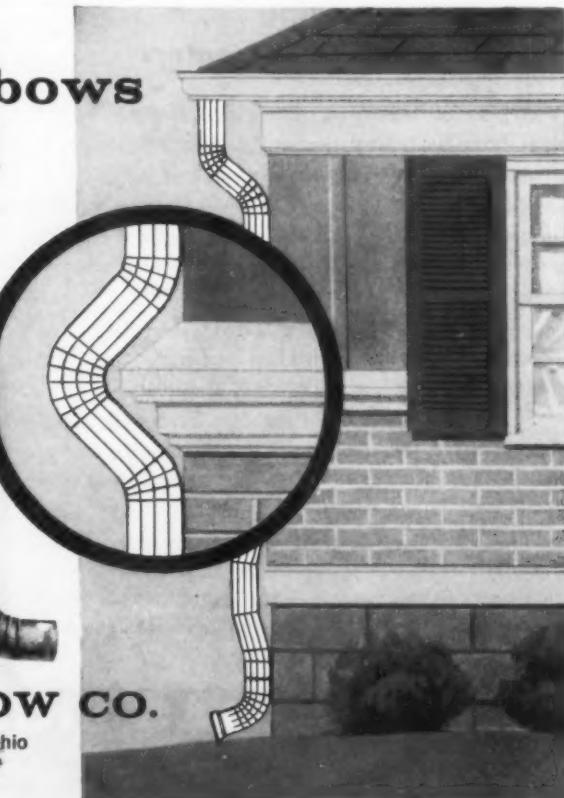
Cincinnati Elbows really get around

Corners and obstructions are no problem when you use Cincinnati Elbows. They're designed to pass around and over every type of obstacle. Shaped and tapered on fully automatic machinery, Cincinnati Elbows fit together perfectly, even on complicated jobs. Once installed, they look better and last longer, for they're hot-dipped after formation to give you a smoother, rust-resistant finish. So, next time specify Cincinnati Elbows. Available in all sizes, angles and gauges in copper, aluminum, stainless or galvanized steel. Ask your jobber today.



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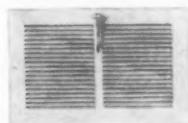


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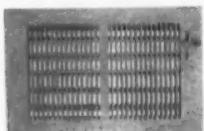
... for custom control of
warm air heating

... for uniform, year-around
heating and cooling comfort



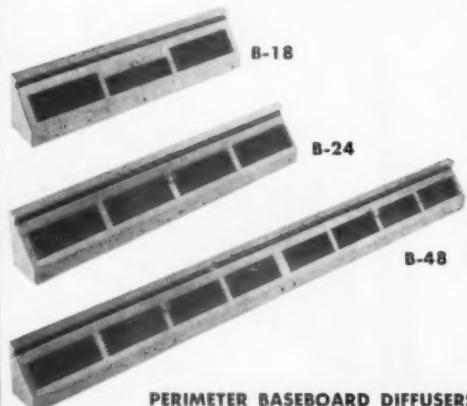
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SINGLE DAMPER FORCED AIR REGISTERS



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MULTIPLE VALVE SIDEWALL & BASEBOARD REGISTERS



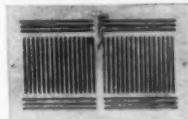
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Also: return air grilles, baseboard and sidewall intakes, air cond. and ventilating returns, door grilles, floor registers, cold air faces, frames, ornamental metals.

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new literature

(Continued)

installation, universal mounting, rugged construction, compact design and easy maintenance. Tables give recommended duct or stack sizes, dimensions and weights—*Westinghouse Electric Corp., Sturtevant Div., Dept. AA, Hyde Park, Boston 36.*

Duct and Fittings

CATALOG gives information on "Uni-Fit" duct and fittings for summer and winter air conditioning systems. Tables give sizes, weights and prices of elbows and angles, plenums, side rail, duct reducers, end caps, takeoffs, stack boots, register boxes and heads, and various accessories including dampers, collars, drawbands and tee caps. Also included is information on stainless steel chimney liners—*Armstrong Fittings Co., Dept. AA, P. O. Box 1356, Des Moines 5, Iowa.*

Heating and Cooling Equipment

WALL CHART measuring 32 × 43 in. illustrates gas, oil and coal-fired furnaces in highboy, counterflow and lowboy models. Also illustrated are duct cooling coil used with "DeLuxe" gas fired lowboy and oil fired horizontal furnaces, and plenum "A" cooling coil used with "DeLuxe" lowboy gas and "Special" highboy fur-

naces. Other illustrations show duct console cooling unit, horizontal fan-coil cooling unit, and air-cooled condenser—*The Williamson Co., Dept. AA, 3500 Madison Rd., Cincinnati 9.*

Air Conditioning Textbook

"REFRIGERATION AND AIR CONDITIONING," written primarily for use as a textbook by students of air conditioning, also serves as a handy reference for dealer-contractors and engineers in that it provides answers to questions of why equipment performs as it does. The author points out that for the most effective use of the book, the reader should be familiar with the principles of thermodynamics as well as the elementary concepts of heat transfer and fluid mechanics. Elements of these three fields are synthesized to explain air conditioning and refrigeration functions, with emphasis on heat and mass transfer mechanisms.

Chapters are included on Applications of Refrigeration and Air Conditioning; The Vapor-Compression Cycle; Compressors; Water-Cooled and Air-Cooled Condensers; Evaporators; Refrigerants; Cooling and Dehumidifying Coils; Air Conditioning Calculations; and Calculating the Cooling Load.

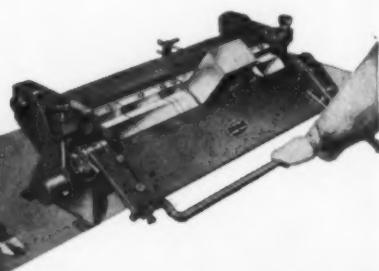
Author of the book is W. F. Stoecker, assistant professor of mechanical engineering, University of Illinois. Copies are priced at \$8—*McGraw-Hill Book Co., Inc., Dept. AA, 330 W. 42nd St., New York 36.*

Hand Operated BOX AND PAN BRAKES

One Man Operation • Quick Adjustments • Rugged Construction



UNIVERSAL BOX AND PAN BRAKES
Capacities up to 12-gauge sheet metal
and bending lengths up to 10 feet.



BENCH MODEL BOX AND PAN BRAKES
Made in three sizes with bending lengths
of 24, 30, and 36 inches up to 16-gauge
sheet metal. Stand is available as extra.

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MEMO TO MEN
ON THE WAY UP



WHERE THERE'S BUSINESS ACTION THERE'S A BUSINESSPAPER

Used to be a song, back in the Thirties, titled, *Little Man, You've Had a Busy Day*. Didn't mention the Big Man. But his days are busy, too. He's the man who must make top-level decisions in business. And to make those decisions, he must have facts. All the facts. All the pertinent information he can get.

He finds time, in his busy days, to get that information. How? By getting a major portion of it from one unique source: the business publications serving his particular field.

No businessman, Little or Big, is fully informed until he reads his businesspaper. He reads it for profit, not for

pleasure. He searches it through for news of the trade or industry. For facts. For fresh ideas. For new products he can put to work. And he reads the advertising with the same intense concentration he devotes to the editorial pages.

For the man on his way toward becoming a Big Man, his businesspaper is especially important. Take a tip from the reading habits of key men at every level. Take out a subscription of your own. Then, make the time to read every issue—and read it thoroughly.

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NATIONAL Angle Rings

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National rings are guaranteed to be round. This means that each and every one is right... a quality that works with you to save lost motion and costly fitting time in the shop or on the job site.

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National leg-out rings are available in-stock for immediate delivery. This on-the-floor warehouse service saves you days of waiting time, makes it unnecessary for you to invest your money in an inventory of your own. Draw on National stocks as you require.

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METAL FABRICATORS

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we hear that . . .

► THE JOHNSON FURNACE CO., Cleveland, has been formed by F. E. Johnson, Almon Chapin and James Crombie, who will serve as president, vice president, and vice president-treasurer respectively. The office and plant of the new company will be located at 2129 W. 117th St. in Cleveland. Both gas and oil fired heating and air conditioning equipment for residential applications will be manufactured, with production scheduled to begin early in 1959. Mr. Johnson, the new firm's president, was previously with the C. A. Olsen Mfg. Co., where he served as vice president in charge of production both at Elyria and at the subsidiary company, the Henry Furnace Co. in Medina, O. Mr. Chapin was formerly head of the Olsen firm's production engineering department. Mr. Crombie was previously vice president in charge of sales for the Henry Furnace Co.



Charles C. Smith

ing for the water heater department of General Electric Co. at Louisville, Ky.

► THE AIR CONDITIONING & Refrigerating Co., Inc., Anchorage, Alaska, has been appointed a sales representative for Embassy Steel Products, Inc., in the state of Alaska.

► ROY C. HAUCK, formerly general manager of Ingersoll Conditioned Air Div., Borg-Warner Corp., has been named president and a director of the Southwest Mfg. Co., Aurora, Mo. Leonard Bisby, formerly chief engineer and plant manager for Southwest, has been promoted to vice president.

► THE ATLANTA district sales office of Penn Controls, Inc., has moved to a new location. New address of the Atlanta branch is 1269 Amanda Circle, Decatur, Ga.

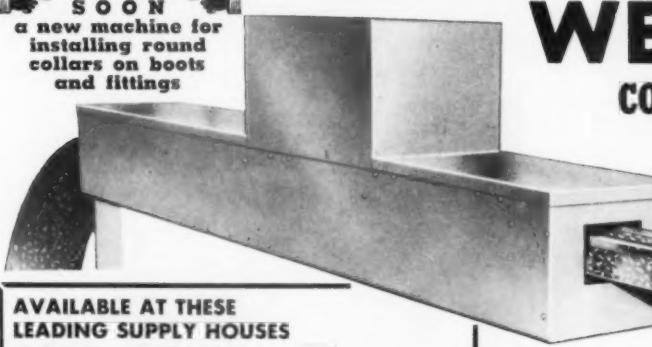
► ELMORE SCHECK, Mueller Climatrol regional sales manager, has been named general chairman of the 1959 Milwaukee home show, which is sponsored by the Milwaukee board of realtors. Mr. Scheck is also

Save 33 1/3% or more with the new

COMING SOON
a new machine for
installing round
collars on boots
and fittings

WELTY-WAY

CONTINUOUS GUTTER MACHINE



AVAILABLE AT THESE LEADING SUPPLY HOUSES

- Atlas Supply Co., Winston Salem, N. C.
- Lyon, Conklin & Co., Baltimore, Md.
- J. T. Ryerson & Son, Philadelphia, Pa.
- Leslie Bros., Indianapolis, Ind.
- Moncrief-Lenoir Mfg. Co., Houston, Texas
- Republic Metals Chicago, Ill.
- McDermaid Bros., Ltd., Toronto, Ont., Can.
- E. E. Souther Iron Co., St. Louis, Mo.
- Vorys Bros., Inc., Columbus, Ohio

Here's the answer to costly shop storage space and fabrication time for gutters. The WELTY-WAY continuous gutter machine makes any length gutter right on the job — 5", 12" girth.

Eliminates needless time-consuming trips to the warehouse or back to the shop and keeps your crews hanging gutters instead of waiting. Also available mounted on a weatherproof tandem trailer. Please write for literature today.

Compare these features . . .

- ★ Capacities: 26 ga and 28 ga galvanized iron.
- ★ Length: 8 ft., including feed table.
- ★ Maximum Speed: With $\frac{1}{4}$ hp motor — 15 feet per minute.
- ★ Width: 14 in.
- ★ Drive: $\frac{1}{4}$ hp single phase, 110-220V, gearhead motor.
- ★ Height: 11 $\frac{1}{2}$ in., including motor, 22 in.
- ★ Weight: 700 lbs., complete with $\frac{1}{4}$ hp gearhead motor.

**WELTY-WAY PRODUCTS INC. 714 FIRST AVENUE, N.W.
Distributors for WELTY-WAY Gutter Machines CEDAR RAPIDS, IOWA**

**In the New York market
... where price is
an important factor . . .
and rigid building
codes exist . . .
Empire Ventilators
outsell all others.**



Empire Ventilation Equipt. Co.

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**ONE
MAN**

WITH THIS NEW [®]
LOCKFORMER

BETT-MARR
BAND SAW

**DOES THE WORK OF
SIX MEN WITH SNIPS!**

Stacked cutting with the Lockformer Bett-Marr Band Saw will actually produce duct work pieces up to 12 times faster than by hand. Cuts 50 to 70 stacked sheets at speeds up to 15 inches per minute. Adjustable blade speeds, from 100 to 3000 fpm, permits cutting any wood, metal or plastic without blade chatter... even stainless steel up to 12 gauge can be friction cut with no distortion.



2 and 3-WHEEL MODELS
13½ inch and 24 inch throats

**Outperforms Band Saws
Costing 3 Times As Much**

The Lockformer Bett-Marr is the one band saw expressly designed for the sheet metal shop. For as little as \$445.00* you can put this rugged high-production band saw to work on any cutting job in the shop. By cutting labor costs 80-90%, it will quickly pay for itself on the first few jobs.

*13½" throat model. Prices subject to change without notice.

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THE LOCKFORMER CO.
Dept. A, 4615 West Roosevelt Road
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In Canada: Brown Boggs Foundry & Machine Co., Ltd., Hamilton, Ontario

LOCKFORMER

TIME SAVING,
MONEY MAKING
EQUIPMENT

we hear that

(Continued)

chairman of the advisory board and a director of the Milwaukee Builders' Association.



GRAND PRIZE in Minneapolis-Honeywell Regulator Co.'s recent contest was a \$100 cash award. From left are Tom McDonald, executive vice president; Donald F. Jaeger, grand prize winner; James H. Binger, vice president; and B. C. Benson, who won \$50 as second prize

► THIRTEEN THOUSAND EMPLOYEES of Minneapolis-Honeywell Regulator Co. recently turned salesmen to help improve the firm's business. Under the "Star Salesman" program, the employees worked in their off hours to influence friends, relatives, heating dealers-contractors and builders to install Honeywell control systems in homes and other buildings. Donald F. Jaeger, a production control worker, won the \$100 grand prize by persuading a builder to use Honeywell controls in more than 700 homes being built in the Minneapolis area and in Florida. In two months, the company says, the employees sold more than \$20,000 worth of controls.

► TO KEEP PRODUCTION FACILITIES abreast of expanding operations, in both the warm air heating and summer air conditioning fields, American-Standard Air Conditioning Div. has recently installed two new stamping presses at its Elyria, O., factory. Each press has a bed area of 30 X 70 in. and permits the use of dies which will blank and form complete jacket panels in one press stroke.

► WEBSTER ELECTRIC Co. is now offering ignition transformers with a wide choice of base plate styles. More than 100 different base styles are available.

► ARKOS MFG. CO., a new company with offices at 7310 Woodward, Detroit, has begun production of direct fired oil and gas heaters for factories, commercial buildings, etc. Headed by Arnold A. Kosarin, the Arkos firm has plants at 20570 W. Eight Mile Rd. and in the Packard Properties development on E. Grand Blvd.

This



WALKER
SHUR-FLO
Draft Inducer Regulator

Unit...

ENDS DRAFT PROBLEMS RIGHT FROM THE START...

MODELS For Gas...Oil...and Solid Fuels!



THE INSIDE STORY OF SHUR-FLO EFFICIENCY

- Hi Volume Self-Feathering Fan
- Self-Cleaning Blades (No sand build-up)
- Stainless Steel Shaft, Hub, and Blades
- Quiet, burn-out proof motor
- Silicon oil bearing
- Extra rigid mountings.
- Extra heavy gauge gear, steel construction.



"I don't fuss and frit with uncertain draft anymore since Walker brought out this low-priced draft inducer-regulator combination. Now, I install Walker inducers on all my jobs. That puts me way out ahead, because with good draft I know every job will be exactly right from the start."

"Most Efficient Draft System Ever Made"

Say Heating Contractors,
Architects, Home Owners

Draft problems are eliminated with a Walker Shur-Flo Control (Pats. Pending) in an oil, coal, or gas-fired installation because it's the SUREST DRAFT SYSTEM ever devised.

Here's an economical draft inducer that's a fool-proof answer to every draft problem from older heating installations to modern, low-roofed houses. You just install it and forget it. What could be better?

Moreover, the Walker Shur-Flo with fan operated draft inducer moves ONLY flue gases; does not suck in outside air. Building and home owners like the Shur-Flo because it runs quietly, costs less to operate, and requires little power. You'll like the Shur-Flo because it installs quickly at any angle—vertically, horizontally, or at a pitch—and virtually eliminates costly callbacks and corrections.

There's a Walker Draft Control scientifically designed to meet every draft problem regardless of fuel. 28,000,000 in use prove efficiency. The standard of performance for the industry.



ROYAL PURPLE
for smaller central
heating plants



JUNIOR LINE
central heating
budget control



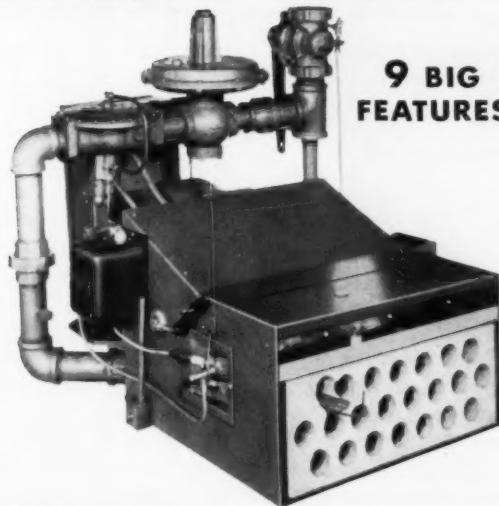
DOUBLE SWING
for gas fired
equipment



VENTURI CAP
for heating
and ventilating

For full details, see your supplier or write direct
WALKER MFG. AND SALES CORP. 1730 Penn St., St. Joseph, Mo.

FOR GAS AND OIL



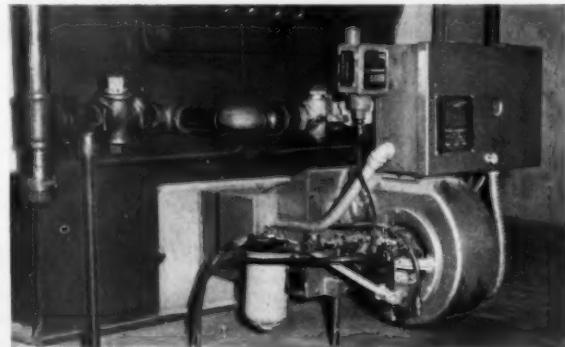
9 BIG
FEATURES

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POWER-TYPE DUAL FUEL BURNER

The finest gas burner...the finest oil burner...now combined in one great unit! Another Lo-BLAST engineering achievement! Check these features—

- **Highest efficiency on either gas or oil.** Lo-BLAST design assures maximum fuel economy.
- **Laminar Flame Oil Burner.** Wide flat flame—no impingement on walls or crown sheet.
- **Fits low base boilers.** Installs through average ashpit door.
- **Reliable—safe.** Factory tested. Underwriters' Laboratories approved.
- **Complete package.** Shipped assembled and wired.
- **Manual or automatic fuel selector.** Damper transfers blower air to either gas or oil burner. Damper position governs switching action to controls.
- **Soft quiet flame.** Low pressure combustion air keeps both oil and gas flames quiet.
- **Safety purge cycle.** 30 second purge on each call for heat—also on fuel changeover.
- **No coking or clogging of oil nozzle.** Shield protects oil manifold against reflected heat. Air cooled during gas cycle.



Send now for literature on this sensational new dual fuel burner

MID-CONTINENT

METAL PRODUCTS CO.

1960 N. Clybourn Ave., Chicago 14, Ill.

wholesaler doings . . .



C. Blaine Lytle

► THE W. T. ANDREW CO., Detroit wholesaler, has appointed C. Blaine Lytle sales promotion manager. In his new position, Mr. Lytle will assist the firm's heating and air conditioning dealer-contractor customers with their advertising and promotion programs.

► ALL WEATHER SUPPLIES, Youngstown, O., recently conducted a control system school for service men and dealer-contractors. Classes were held one evening a week for four weeks. The course, under the direction of Clarence Barger, president, All Weather Supplies, covered such subjects as: 1) Electric Circuits and Controls; 2) Gas Controls and Control Systems; 3) Zone Control for Warm Air and Wet Heat Systems; 4) Residential Air Conditioning Control Systems.

The sessions were based around a work book containing 54 pages of instructions and problems, which was put together especially for the school by the Pittsburgh office of Minneapolis-Honeywell Regulator Co. Students received a minimum of lectures and were re-

quired to use their initiative to complete the work assignments. Attendance at the weekly classes averaged 45 students.

Two additional classes covering the subjects of Flame Safeguards and Oil Control Systems have been scheduled.

► SHEET METAL PRODUCTS CO., Peoria, Ill., has been appointed a distributor of Rheem furnaces and central air conditioning equipment. Officers are J. Elmer Prill, president-treasurer; Robert E. Toniny, vice president; and William E. Olson, secretary.

► POWER ENGINEERING CORP., 100 Stage Rd., Vestal, N. Y., will handle distribution of Carrier residential and commercial packaged air conditioning equipment in eight counties in the southern part of New York. David P. Lees, manager of Power Engineering, stated that new dealers will be appointed in various cities of the area.

► JOE L. PLEASANTS, INC. will handle distribution of window and packaged central air conditioning units and heat pumps for Gibson Refrigerator Co. in the Charlotte, N. C., area. Joe L. Pleasants is president and treasurer of the firm and Joe G. Fitzsimons vice president and secretary. Offices are at 605 W. 5th St., Charlotte.

NOW... in individual cartons! SCHAEFER FLUE BRUSHES

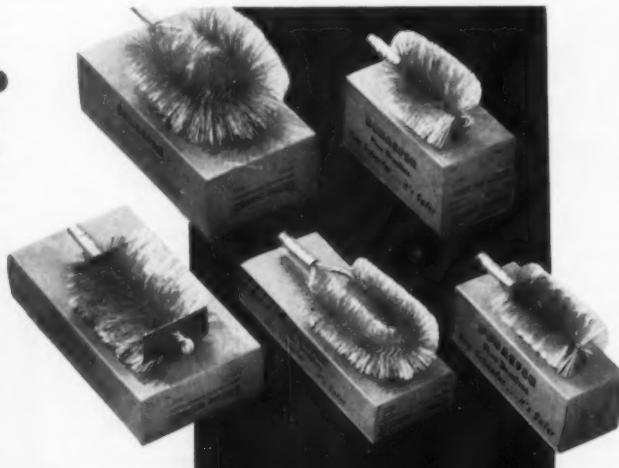
- No more pricked fingers or danger from rusted bristles.
- Easier to display, merchandise and handle.
- Longer-wearing SILVER-BRITE RUSTPROOF WIRE or Black Tempered Wire.
- Every carton clearly marked as to number, shape, size or specifications.
- Each and every brush in its own carton insures clean stock and eliminates re-wrapping.
- There's a correct Schaefer Brush for every industrial and domestic use.

SCHAEFER Flue Brushes of SILVER-BRITE Rustproof Wire

Schaefer's special alloy "Silver-Brite" *rustproof* spring steel wire has been developed for longer wear, more effective cleaning. Here's extra value, extra satisfaction in any brush and each is *individually packaged* for easier handling.

NO INCREASE IN PRICE!

You wouldn't handle a porcupine . . . why handle a flue brush that isn't individually packaged?



BUY SCHAEFER -- IT'S SAFER

Write for SCHAEFER Catalog on flue and furnace brushes, or for information on any special brushes for specific requirements.

SCHAEFER BRUSH MFG. CO.

117 W. Walker Street
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NEW IMPROVED
SQUARE DUCT HANGER

With new "Positive Lock" cam action feature . . . No Special Tools! Hammer does the Job! Available in six lengths.

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A. Round Pipe Hanger used when joist is offset from duct

B. Simple Application of Square Duct Hanger as shipped to you

DUCT

AS LOW AS **2 1/2¢ EACH**

SQUARE DUCT HANGER

No. 15

SEE your **SUPPLIER** or WRITE for FREE samples TEST THEM YOURSELF ON THE JOB!

Square Duct Hanger twisted and in place

A. M. HEXDALL CO.
Manufacturers of Sheet Metal Specialties
MORRIS, ILLINOIS

BACHARACH
GAS PRESSURE GAUGE

- Body is transparent, high-strength plastic extrusion.
- Scale features easy readability; made of white plastic, with black scale divisions and numerals; 1/10" W scale divisions.
- Indicating Fluid of 1.9 specific gravity permits pressure reading to 1/10" W over entire scale on gauge of convenient size. Fluid is colored blue for visibility; is non-freezing to low temperature. Gauge is furnished filled ready for use.
- Shut-off Valves are conveniently opened or closed by rotation of knurled discs.
- Scale is adjustable up or down to permit direct reading of pressure.
- Blow-over seal automatically prevents spilling of fluid when gauge is subjected to pressure surges in excess of scale range.
- Body serves as reel for rubber hose.
- For convenient attachment of gauge to gas pipe an adjustable mounting clamp is available as optional accessory.

Gauge with scale 0.7" W
\$13.90 FACTORY NET

Gauge with reversible scale
— 0.15" W on one side,
and 0.8-5 ounces per sq.
in. on other side.
\$17.80 FACTORY NET

Ask your Jobber or write for Leaflet 830

**BACHARACH INDUSTRIAL
INSTRUMENT COMPANY**
200 N. Braddock Ave., Pittsburgh 8, Pa.

Speedy **E-Z-ONS**

E-Z-ON
STANDARD
DESIGN
No. 27

Do a
Better Job
At a Lower Cost

Now, it actually costs you less to get a better engineered E-Z-ON damper regulator.

Here's Proof: • Lower Price . . . Means Lower Cost to You
• Double Prongs Mean Double-Grip . . . No chance of swiveling
• Washer is Permanently Attached . . . No loose washer to drop or fall in pipe • Modern "Swept" Wing Nut is Eye-appealing . . . Adds new beauty to installations • Balanced Construction . . . Prevents possible binding of damper in duct.

M. A. GERETT CORP.

724 W. Winnebago St., Milwaukee 5, Wis.

all leading jobbers stock E-Z-ON

Stocked in Canada by THERMIDAIRE CORP., 7-9 Cumberland St., Toronto

AWAITED BY THE HEATING INDUSTRY . . .
NOW IT'S HERE

**THE OG-56 OIL-TO-GAS
CONVERSION UNIT**

A. G. A. TESTED
AND CERTIFIED

Developed by a famous name in heating—Banner Burner—for oil-to-gas conversion the OG-56 is superior in design and construction . . . installs quickly, easily and profitably. Now being manufactured with these outstanding advantages:

EASY TO INSTALL—fits through four-inch oil burner sleeve! ONE PIECE CAST IRON CONSTRUCTION of venturi and flame spreader—will not burn out.

M. H. CONTROLS—available in Powerpile or 24-volt system. An example of the quality components throughout.

Write for complete details.

BANNER BURNER CO.

327 EAST INDIANOLA AVENUE • YOUNGSTOWN 7, OHIO

BEVERLY SHEARS SAVE TIME • LABOR • MATERIAL

Make any cut—curved, straight or irregular, faster, easier and better with less material waste on a Beverly Throatless Shear. You can turn work to any position and make a clean cut as you go. Handles heavy gauges with ease—lighter metals without distortion. 4 models—capacities 18 gauge to $\frac{3}{16}$ " mild.



INSIDE SLOTTER 8" Reach—16 ga. capacity

Makes inside slotting cutting faster, easier, cleaner. Punch and die arrangement of 5 blades assures accuracy, clean cutting action. Cuts $2\frac{1}{2}$ " x $\frac{1}{8}$ " or $2\frac{1}{2}$ " x $\frac{1}{16}$ " slot at one stroke. Throat design permits pivoting work at any point in stroke for special inside cuts. Note sample cuts at left.

See your Beverly Dealer or write for illustrated catalog.

Beverly SHEAR MFG. CO.
3020 W. 111TH STREET • CHICAGO 43, ILLINOIS

Improved 5 WAYS
FOR MORE PROFITABLE
SALES



SERIES 555
Fits any straight
side warm air
furnace.

THEY ALL ADD UP TO:

- Fewer service callbacks.
- Assurance of humidity balanced with temperature.

WRITE FOR CATALOG AA-10.

AUTOMATIC HUMIDIFIER COMPANY
CEDAR FALLS, IOWA

merchandising ideas

► LENNOX INDUSTRIES INC. recently completed the mailing of a series of four circulars to its dealer-contractor organization describing the company's consumer promotion campaign scheduled for the fall months. No. 1 in the series tells the dealer-contractor that he is "on the spot," because in advertising scheduled to appear in national magazines the company is telling the public that Lennox "comfort craftsmen" can perform heating magic, can give the home owner several hours of "free heat" each winter through the application of the principle of continuous air circulation. "Be prepared to handle inquiries," the folder urges. "If you don't already use C.A.C., get and study our manuals on the subject." No. 2 in the series explains "How to Make the Public Mad." This can be accomplished by: 1) pretending to be a heating expert but giving just average service; 2) ignoring the principles of C.A.C.; 3) failing to live up to the picture of a "comfort craftsman" as described in the company's ads. The third circular tells "How to Be a Fair Haired Boy." Final piece in the series asks "Will You Be the Goat this Fall?" and goes on to explain that dealer-contractors will be goats or heroes, depending upon whether or not they can live up to the public's expectations, can perform "heating magic" as promised in the company's advertising.

► HERRMIDIFIER CO. offers dealers a display unit that shows its new "Return-Aire" humidifier in operation. The display operates from any standard electrical outlet, occupies only 12 x 12 in. of counter space. It consists of an operating humidifier, a cutaway duct section, a display card detailing outstanding features, and a top-mounted spotlight which illuminates the entire unit.

► WHIRLPOOL CORP. has launched a "Diamond Hunt" promotion campaign designed to bring the public into dealer-contractor showrooms. Participating dealer-contractors freeze a limited number of genuine diamonds and a greater number of semi-precious stones into ice cubes. The public is then invited, by means of newspaper ads, radio, TV and direct mail, to come in and choose an ice cube. Each "diamond hunter" is required to register first. The cube chosen is placed in a paper cup to melt, allowing time for salesmen to present their selling stories while the ice is melting.

► ARKLA AIR CONDITIONING CORP., Little Rock, Ark., offers job site signs for use at homes or commercial establishments where "Arkla-Servel" gas air conditioning is being installed. Printed in blue and yellow on both sides of weatherproofed cardboard, the signs are 28 in. high and 44 in. wide. Space is allowed for the dealer-contractor's name.

FLANGES THE DUCT with Amazing Speed!

Less than 5 seconds on short
and lighter pieces . . .
Slightly longer on bulkier pieces

MAKES PERFECT DRIVE-CLEATS TOO!

The ONLY tool that does both. A complete drive cleating tool . . . no set-up time . . . no adjustments. Handy to take out to the job when not needed in the shop. Turns idle time into production time. Flanges any square duct up to 20 gauge. Quickly pays for itself in time, material and labor savings.

No. 12 Smith's Cleat Bender	12" Wide — \$ 49.80*
No. 18 Smith's Cleat Bender	18" Wide — 78.60*
No. 24 Smith's Cleat Bender	24" Wide — 140.00*
No. 30 Smith's Cleat Bender	30" Wide — 170.00*

Also Cleat Bending Brakes
*F.O.B. Waukegan, Illinois
Prices subject to change
without notice

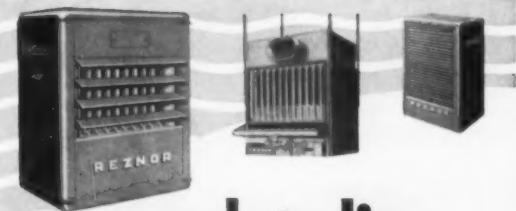
R. E. SMITH

1124 Elizabeth Avenue • Waukegan, Illinois

PERFECT DRIVE CLEATS

fit the duct without
the use of a screwdriver.

TREMENDOUS SAVINGS
in erection time and labor.



complete line

Reznor dealers don't lose sales because they can't meet the specs, or can't match available equipment to job requirements. Reznor gives them everything they need to sell gas heating to business and industry. Suspended gas unit heaters (both fan and blower types) in 11 sizes—25,000 to 300,000 BTU. Duct furnaces for system capacities from 50,000 to several million BTU. Room heaters in four popular sizes.

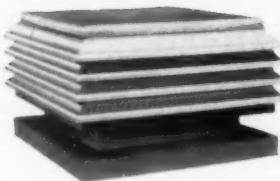
COMPLETE LINE—just one of many reasons why Reznor dealers make more sales . . . and more money. Ask your Reznor distributor for the complete story.



REZNOR
WORLD'S LARGEST SELLING DIRECT-FIRED
UNIT HEATERS

Reznor Manufacturing Company, 6 Union Street, Mercer, Pa.

GREENHECK Air Movement Devices



COLUMBUS
Direct Drive centrifugal power roof exhauster. 100 to 1400 CFM. Boston companion series belt drive 500 to 4300 CFM.

1958 "WAUSAU" AIR MOVER POWER ROOF EXHAUSTER

You will be specifying the finest when you call for the new "WAUSAU" Air Mover. A completely new concept, this centrifugal belt drive power roof exhauster covers the 300 CFM to 27,000 CFM range and features rugged steel body and frame, extruded aluminum louver fins and a mounting pedestal with removable damper access door. The finest of workmanship and materials assure you of a quality product. Write today for catalog 9 which gives complete engineering information.



DALLAS
Air Mover Belt drive centrifugal power roof exhauster.



Turbine Ventilator Available in aluminum or galvanized.

GREENHECK FAN & VENTILATOR CORP. SCHOFIELD • WISCONSIN



Zatko

WORLD'S LARGEST
MANUFACTURER OF
**ONE-PIECE
STAMPED
PULLEYS**

Long the favorite with
Original Equipment Manu-
facturers of Automobiles,
Heating and Air Condition-
ing Equipment.

**THEY COST
YOU LESS!**

Because they are made in ONE-PIECE

ZATKO ONE-PIECE PULLEYS—
Are Stronger, wear longer and cost
you less. Hundreds of thousands
now in use. Write for Literature.

Zatko METAL PRODUCTS CO.
20850 ST. CLAIR AVE.
CLEVELAND 17, OHIO

appointments . . .

► ORRIN E. BURWELL as managing director of the Payne Co.'s product application and engineering department. Mr. Burwell has served in various capacities, including sales engineer, field sales engineer, customer relations manager, and, until his recent promotion, as southern California sales representative. In his new position, he will be responsible for the preparation of product engineering literature, will direct dealer schools and training programs, and will also handle specialized and technical service problems.



Orrin E. Burwell



Frank Kohles

► FRANK KOHLES as general sales manager of the William Wallace Co. Prior to his recent promotion, Mr. Kohles was sales manager of the company's Metalbestos Div., directing the sales of gas vent pipe and

chimneys. In his new position, he will also be responsible for sales of roof drainage products manufactured by the Standard Line Div. He has been with the firm since 1950. Robert A. McHugh, formerly sales manager for the Standard Line Div., has been named assistant to Mr. Kohles. Walter S. Waddington has been appointed assistant sales manager in charge of Standard Line sales. In his new position, he will report to Mr. Kohles.

► ALWIN B. NEWTON as director of engineering for the York Div. of Borg-Warner Corp. In this capacity, Mr. Newton is responsible for all research and product development relating to residential air conditioning systems, room air conditioners, and heat pumps. Before joining York, he was vice president, design and research, for the Coleman Co. He also served as a member of the firm's board of directors. Before that, he was chief engineer for the Airtemp Div., Chrysler Corp., and was responsible for the design of all air conditioning products. Mr. Newton has also been with Minneapolis-Honeywell Regulator Co., where he served as manager of the Refrigeration Div.

► GILBERT M. LONG as general sales manager for Wheeling Corrugating Co. Mr. Long, with the company since 1937, has served in various sales capacities, including district sales manager in Wheeling, assistant



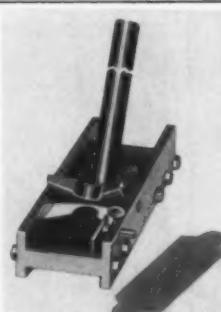
SWIVEL HEAD SQUEEZER TONGS

For closing Government box lock connection on duct work and all standing seams. Swivel head makes tongs usable on all four sides, in either vertical or horizontal position.

for a complete line of **HANDY TOOLS AND EQUIPMENT** . . . see

CLEAT DRIVE NOTCHER

Handles up to 3" wide, 22 ga. or lighter. Hand or foot operation. Mounts on bench, or on job with clamps, or bolts and screws.



CLIP PUNCH

For fastening slips or seams on ducts. Will push a "half moon" thru 3 thicknesses of 18-ga. steel. No hammering or flattening out to fasten slip to the duct.

SOLDERING OUTFIT

Will give you hot soldering iron in one minute—Solders eight hours for 10¢—Right amount of heat—No changing of irons—Make your own fuel from water and carbide.



REINER & CAMPBELL CO., INC.

P.O. Box 5035
Newark 5, N.J.

WARM AIR CONTRACTORS

If You Own A Pullman Vac, you need a Drum Adapter

for
PROFITS
and extra
SALES

- it adapts Pullman vac to 55 gallon capacity in seconds
- it lets you do big jobs quickly, easily, saves costly labor, overhead • it's ideal for industrial furnaces and boilers
- it means no repeated emptying, saves time • it fits any standard 55 gallon drum.

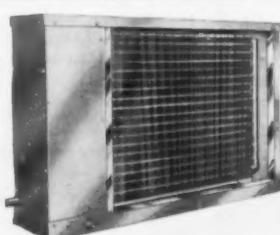
Pullman
Furnace &
Boiler Vacs
Are First in
Sales Because
They Never
Clog

PULLMAN
VACUUM
CLEANER
CORP.
25 Buick St.
Boston 15, Mass.

Pullman

**Quick Delivery
to South & West
Horizontal Air
Flow
EVAPORATORS**

Stock Sizes—
2, 3, 5, 7.5 & 10 Ton



**Magic Aire Division
UNITED ELECTRIC CO.
P.O. Box 119
Wichita Falls, Texas**



PIPE and FITTINGS

Prompt Deliveries

MONCRIEF offers a complete line of Prefabricated pipe and fittings for any type of Heating or Cooling system. All precision made, at low mass production cost. Prompt shipment from Atlanta Factory makes MONCRIEF the South's most dependable source of supply on Duct Work, Registers, Grilles and Diffusers. Save time and money by ordering from your jobber TODAY. Write for catalog showing fittings and prices.

MONCRIEF FURNACE CO.
P. O. Box 1673 Atlanta, Ga.

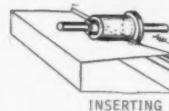
NOISELESS HAMMER

For Closing

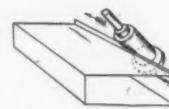
Pittsburgh Lock Seams

The Noiseless Hammer is designed to close Pittsburgh Lock Seams of metal ducts faster and easier than any other method. Tool is effective on steel ducts up to and including 26 gauge; works silently and efficiently without power. It is 14½" long and weighs only 4½ lbs. for easy and convenient hand operation.

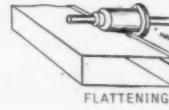
CLOSES SEAMS IN 1/5 THE TIME
REQUIRED BY USE OF
REGULAR HAMMER



INSERTING



FOLDING



FLATTENING

Does complete insertion, folding and flattening operation in three

simple rolling operations. First roll inserts tab into lock, second roll bends lock to 45° angle, third roll closes lock flat without bumps — waves — or unevenness. Safe, simple, and easy to use. Increases per man production. Speeds installation, reduces rejects — pays for itself in first 4 hours of use.

SOLD ONLY BY MAIL. MONEY BACK
GUARANTEE IF NOT SATISFIED.

\$18⁵⁰ Plus COD And Postage

Send check with order, we pay postage
BELL MACHINE SPECIALTIES
4813 Tremont Ave., Dept. B, Trevose, Penna.



Manufacturers' Agents

Are you interested in securing additional lines?

We are occasionally asked by our manufacturer advertisers to suggest the names of manufacturers' agents in various sections of the country whom they can contact in regard to representation of their residential heating, sheet metal and air conditioning products.

If you would like your name listed on our records for inquiries we may receive for your territory, we invite you to write us. There is no charge in connection with this service.

AMERICAN ARTISAN

6 N. Michigan Ave.

Chicago 2, Ill.

Handy

THE HANDY PIPE FLAG
HAS REPRESENTED
FURNACE PIPE QUALITY
TO THE TRADE
SINCE 1894

Our accurately-made products
help you keep your costs down.

F. MEYER & BRO. Co.
PEORIA, ILLINOIS

Zatko
SILENTRIDE*
V-Belts
for Air Conditioning Equipment
ABSORBS 24% MORE VIBRATION

Independent laboratory check proves this light duty V-Belt absorbs 24% more vibration and noise than next best "Low Vibration" Belt.

For Air Conditioning Equipment, Forced Air Furnaces, Window and Attic Fans — also — Washing Machines, Driers and light work-shop Equipment.

T M Pending

Zatko METAL PRODUCTS CO.
 20850 ST. CLAIR AVE., CLEVELAND 17, OHIO
Zatko — World's Largest Manufacturer of stamped one-piece Pulleys

GEM
 REFRactories

COMBUSTION CHAMBERS

ENGINEERED TO YOUR REQUIREMENTS

... GEM engineers are at your service for special designs... developing new units or redesigning to reduce assembly costs. Send us your prints.

GEM
 GEM CLAY FORMING, INC.
 SINCE 1907 BOX 500 • SEBRING, OHIO • YE 8-2101

Call on GEM Engineers for your Refractory Shapes.

GEMCO BOND refractory cement insures maximum bonding strength.

appointments

(Continued)

to the manager of the Long Island City branch, and Columbus branch manager. He will have headquarters at the firm's general offices in Wheeling, W. Va.

► **L. PAUL LEE** as head of the newly formed aluminum sales department of Joseph T. Ryerson & Son's Milwaukee plant. Mr. Lee has been manager of the Milwaukee plant's stainless steel sales, and he will continue in that capacity.



L. Paul Lee



Patrick N. Morgan

► **PATRICK N. MORGAN** as a vice president of the John Wood Co.'s Heater and Tank Div. Mr. Morgan will continue, as eastern sales manager, to direct sales, advertising and similar activities in the area served by the Conshohocken, Pa., plant.

► **ROY O. SHELKEY**, formerly manager of the finned surface sales section, as manager of National-U.S. Radiator Corp.'s Detroit branch. Mr. Shelkey joined the company in 1924. William F. Hershey has been appointed manager of the firm's Cincinnati branch. Mr. Hershey, with the company since 1947, was sales manager of the Detroit branch until his recent promotion.



Roy O. Shelkey



Art W. Pracker

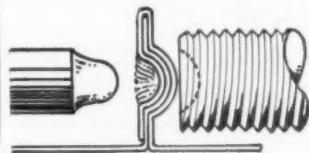
► **ART W. PRACKER** as middle eastern district manager for OverHead Heaters, Inc. In his new position, Mr. Pracker will assist distributors and dealer-contractors serving the middle eastern area. Prior to joining the company, he was sales manager of the Jackson & Church Div. of York-Shipley, Inc. His headquarters will be at Columbus, O.

► **DICK ANDERSON** as a representative for Standard Furnace Supply Co., Ltd., covering the states of Min-

WHITNEY

PUNCHES AND DIES SINCE 1907

BUTTON PUNCH & DIE



BUTTON PUNCH & DIE

This button punch is used to fasten three or more thicknesses of metal together by indenting the several thicknesses of metal without punching a hole or using a rivet.

NO. 6 PUNCH

Capacity $1\frac{1}{8}$ " hole thru $3/16$ " iron; length 26-1/2"; depth of throat 1-3/4"; weight 10-1/2 lbs. Stock size of punches $1\frac{1}{8}$ " to $9/32$ " by $1/32$ ". Complete tool includes three punches and three dies. This tool is especially adapted for button punching.

NO. 6 PUNCH



W. A. WHITNEY MFG. CO.

636 Race Street, Rockford, Illinois



ORNAMENTS

STAMPINGS & SPINNINGS
Zinc Ornaments Available From Stock. Copper, brass, bronze, aluminum and stainless steel ornaments made up promptly.

If you don't have catalog K, send for it NOW

MILLER & DOING

89 ADAMS STREET

BROOKLYN, N.Y.

Announcing the NEW ALUMINUM "K" BOX GUTTER HANGER



SIZES
 $4\frac{1}{2}$ "-5"

PROFILE—Designed to fit contour of "K" Gutter perfectly.

RIB-in back-acts as a guide for gutter, prevents gutter from catching on nail heads. An **ALUMINUM HANGER** — with extra embossment for strength.

Manufactured by
Berger Bros. Company
229-237 Arch St.
Philadelphia 6, Pa.

50 per carton including Snap Strap
SOLD THRU LEADING JOBBERS EVERYWHERE

Illustrated Catalogs give complete information

WARM AIR CONTRACTORS

Go in for *Easier*

FURNACE CLEANING

Come out with

EXTRA SALES!



Pullman
Furnace &
Boiler Vacs
Are First in
Sales Because
They Never
Clog

PULLMAN
VACUUM
CLEANER
CORP.
25 Buick St.
Boston 15, Mass.

Pullman

Here's how the
Pullman Never-Clog
filter makes
furnace cleaning
easier!

Never clogs even
during toughest jobs
• Guarantees full-
time suction •
Makes cleaning al-
most automatic •
Lasts for years and
years.

PERFORATED METALS

for all industrial uses

ARCHITECTURAL GRILLES

Illustrated Catalogs give complete information

Diamond Manufacturing Co.

Box 34, Wyoming, Pa.

Wilkes-Barre Area

Sales Agents in all principal cities

Consult your Classified Telephone Directory



"it's reached for time and
time again all year long!"

THE JANUARY DIRECTORY NUMBER OF AMERICAN ARTISAN

Each year over 200 advertisers use the January Directory Number to make sure their product story "gets through" when buying decisions are being made, sources of supply investigated. Will you be among them in 1959?

Nowhere can your advertising dollar be better invested. Take full advantage of this opportunity. Plan now for adequate space. Regular rates apply.

AMERICAN ARTISAN, 6 N. Michigan Ave., Chicago 2

appointments

(Continued)

nesota, Wisconsin, Illinois, Michigan, Indiana and the eastern half of Iowa. He formerly covered the same territory for F. Meyer & Bro. Co.

Ralph Dietrich and Edward J. Martin have also joined the firm as sales representatives. They will cover the central and southwestern states respectively.



John C. Nowacki

extensive experience in the fabrication of sheet metal. His headquarters will be in Chicago.

► JOHN C. NOWACKI as a sales representative in the midwestern territory for the Peck, Stow & Wilcox Co. Mr. Nowacki, recently retired from active duty as a major in the United States Air Force, is a qualified sheet metal worker and has had extensive experience in the fabrication of sheet metal. His headquarters will be in Chicago.

► ALFRED J. HAMILTON as representative in the state of Connecticut for Cambridge Filter Corp. He replaces Robert H. Avery who has been transferred to the company's main offices in Syracuse where he will be in charge of advertising and technical information services.

► JACK JANOFSKY as a member of the technical advisory staff of Colt Ventilation of America Inc. In his new position Mr. Janofsky will serve as consultant on difficult plant ventilation problems. He was formerly a manufacturer's representative serving the southern California area.

► A. PHELPS LANGTRY as a sales engineer working out of the Chicago sales office of Ilg Electric Ventilating Co. John M. Dooley has been named sales representative to cover the Knoxville area.

► W. BLAINE MARTIN CO., 41 S. Third, E., Salt Lake City, as manufacturers representative in the mountain states territory for Insto-Gas Corp.

Obituary

Arthur D. Redner

ARTHUR D. REDNER, former president of General Filters, Inc., died in the British American Hospital, Mexico City, Mexico, on August 14, 1958. Mr. Redner founded General Filters in 1937, and was its president until ill health forced his retirement in 1955. He is survived by his wife, two sons and two daughters.

UNION SHEET METAL SUPPLY, INC.

SEAMLESS, LONG-LENGTH GUTTER — TO YOUR SPECIFIED LENGTH UP TO 32 FEET

WITH 3 INCH SQUARE CORRUGATED CONDUCTOR PIPE AND "A" OR "B" ELBOWS

(UNION MADE BY AF of 1 SHEET METAL WORKERS)

WE WILL SEND
FULL INFORMATION
AND PRICES ON
YOUR REQUEST

FURNACE PIPE AND FITTINGS

5 INCH, 6 INCH, 7 INCH SNAP-LOCK ROUND PIPE 5 FOOT AND
2 FOOT LENGTHS, WITH ELBOWS AND BOOTS

SOME PROTECTED
TERRITORIES AVAIL-
ABLE
TO MANUFACTURERS
REPRESENTATIVES

16722 MILES AVENUE

Skyline 2-0660

CLEVELAND, OHIO

SAMPLES FREE

SODER STAINLESS
STEEL RAPIDLY



FLUXES
SODERING
BRAZING & WELDING

L. B. ALLEN CO. INC.

9302 Berenice, Schiller Park, Ill.

Chicago 31, Ill.

WARM AIR CONTRACTORS
Go in for

Easier
FURNACE
CLEANING

Come out with
**EXTRA
SALES!**

Here's why the
Pullman Never-Clog
Vac means extra
sales!

Gets you in and out
of basement fast

• No breakdowns,
more sales calls •
Paves way for re-
pairs, installations,
fuel oil sales •
Makes happy cus-
tomers, steady
customers.



AA-10

PULLMAN
VACUUM
CLEANER
CORP.
25 Buick St.
Boston 15, Mass.

Pullman

Classified Advertising

Rates for classified advertising are 12 cents for each word, including heading and address. One inch \$6.00. Count nine words for keyed address. Minimum \$2.00. Closing date 20th of month preceding publication.

✓ AGENTS WANTED

TOP FLIGHT REPRESENTATIVE ORGANIZATION — offering five man qualified sales force, warehousing facilities, financial stability, 400 active distributor accounts, seeks additional major line desiring distribution in plumbing, heating and air conditioning industries. Prefer line of HEAT PUMPS. Concentrated west coast coverage: California, Arizona, Nevada. Address Key 1037, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

MANUFACTURER'S REP — Man presently calling on O.E.M. wanted to represent leading manufacturer of blowers. Commission basis. No objection to complementing lines. Send full facts first letter. Address Key 1036, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

✓ SITUATIONS OPEN

WANTED — Shop Foreman . . . general sheet metal shop. Must be experienced in layout, supervision of industrial duct work, architectural sheet metal and stainless steel fabrication. Remarkable opportunity for right man. Community of approximately 100,000 in midwest. Address Key 1035, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

Medium size Mid-Western furnace manufacturer with complete line and national distribution wants chief engineer to take full charge of department. Address Key 1038, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

✓ SITUATIONS WANTED

General manager available, 30 days notice. Thoroughly experienced operations medium to large roofing and sheet metal shop. Address Key 1033, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

SUPT. or Job Manager, presently employed, desires challenging opportunity. 25 years experience all phases sheet metal fabrication and erection including supervision of multi-million dollar projects. Also some mechanical experience. Resume sent upon request. Address Key 1034, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

✓ FOR SALE

FOR SALE OR LEASE: An established Heating-Ventilating-Sheet Metal business located in Southern California. Furnished small home also available. Heart condition reason for retirement. Write: G. E. Boylan, 404 Emerald Avenue, El Cajon, California.

Duct Joint Connections. Galvanized iron drive, S, Bar Cleats. Prices and samples on request. Order for each individual job. Box 467, Springfield, Mass.

FOR SALE — Nameplates & numbered valve tags manufactured for Contractors. Free catalog and samples. Seton Nameplate Co., New Haven 15, Conn.

Expecting an Order?

You'll get it quicker if your postal zone number is on the order blanks, return envelopes, letterheads.

The Post Office has divided 106 cities into postal delivery zones to speed mail delivery. Be sure to include zone number when writing to these cities; be sure to include your zone number in your return address—after the city, before the state.

... move your products in greater volume
through consistent advertising in this

Service Section . . .

Rates for display space in the Service Section are \$12.00 per inch per insertion. One-inch minimum space accepted. Closing date — twentieth of the month preceding issue.

Palm Beach

\$ PROFITS PLUS

NO CALL BACKS

\$ SIMPLE INSTRUCTIONS \$ QUICK INSTALLATION
\$ GRAVITY COMFORT WITH FORCED AIR
\$ EVEN TEMPERATURES — FLOOR TO CEILING —
ROOM TO ROOM
\$ LICKS LONG RUN — COLD ROOM — SPLIT LEVEL
PROBLEMS
\$ REGULATES BLOWER SPEEDS IN DIRECT PROPORTION
TO PLENUM TEMPERATURES
\$ \$ \$ \$ \$ NO RISK OFFER TO INTERESTED DEALERS \$ \$ \$ \$ \$
SEND US YOUR CHECK FOR \$37.50

LET "PALM BEACH" PROVE ITSELF ON ANY JOB OR JOBS
IF NOT CONVINCED SEND IT BACK UNDAMAGED
WITHIN 60 DAYS AND GET YOUR MONEY BACK BY
RETURN MAIL

NATIONAL MODULATION CO.

2730 N. HY. 61



5 Year Guarantee
ORDER TODAY

ST. PAUL 9, MINN.

✓ AIR LOSS
✓ AIR
DISTRIBUTION
IN 30 SECONDS
with
safe • fast • positive
Kilgore
SMOKE CANDLES

Write Today For Catalog
Kilgore, Inc., Westerville, Ohio

SHEET METAL MACHINES & TOOLS

Lockformer Machines Peer Spot Welders
Chicago Hand Brakes Reed Power Rolls
Chicago Press Brakes Wysong Shears
Pexto Power Shears Whitney Punches
Pexto Foot Shears Whitney Foot Presses
Pexto Rotary Machines Pexto Mechanic's Tools
Pexto Slip Rolls Black & Decker Tools
Pexto Bar Folders Bett-Marr Bandsaws
Smith Cleat Binders Marshalltown Presses
Savage Nibblers Punches and Dies
Mipatone Pittsburgh Lock Hammers

SEND FOR CATALOG

CENTRAL-WEST MACHINERY CO.
335 S. WESTERN AVE. CHICAGO 12, ILL.
PHONE: HAYmarket 1-0900

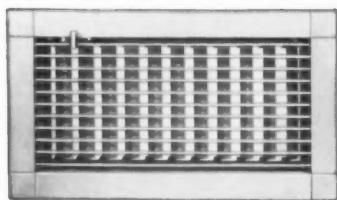
SO SOFT RUBBER
KNEE PROTECTORS
EVERY ROOFER SHOULD
HAVE A PAIR.
PRICE \$2.50.
ORDER YOURS TODAY.
JOHNSON
LADDER SHOE CO.
EAU CLAIRE, WIS.

FLOAT VALVES for
Evaporative Coolers, Poultry
Troughs, etc.
Operates in 1" of water.
DAN MOREY
814 S. Robertson
Los Angeles 35, Calif.

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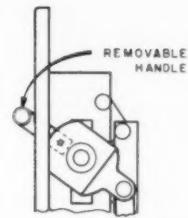
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NO. 831 — HORIZONTAL FACE BARS . . . VERTICAL LOUVERS

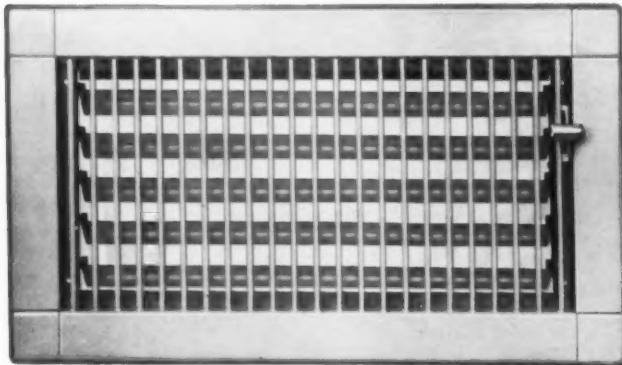


PARALLEL ACTION LOUVERS



SNAP-IN REMOVABLE POSITIONING HANDLE

See these new H & C dual-purpose, money-saving Air Conditioning Registers



NO. 821 — VERTICAL FACE BARS . . . HORIZONTAL LOUVERS

MULTIPLE DEFLECTION . . . EXACTLY AS
DESIRED . . . provided by
PARALLEL ACTION LOUVERS ADJUSTABLE
ON NO. 821 TO DEFLECT THE AIR
STREAM AT ANY UPWARD ANGLE AND
DOWNWARD TO 45°

SNAP-IN VALVE POSITIONING HANDLE
. . . REMOVABLE TO PREVENT TAMPER-
ING WITH SETTING.

VERTICAL OR HORIZONTAL LOUVERS
AND FACE BARS.

PLUS
PIVOTED FACE BARS . . . EASILY ADJUST-
ABLE TO ANY ANGLE AND PIVOTED AT
THE FRONT OF FACE TO LEAVE APPEAR-
ANCE UNIFORM REGARDLESS OF POSI-
TION OF BARS.

SHALLOW DEPTH (1 $\frac{1}{16}$ "-VALVE OPEN)
ADAPTABLE TO PRACTICALLY ANY DUCT
REQUIREMENT.

TYPICAL

QUALITY IN EVERY DETAIL



AVAILABLE IN A VERY WIDE RANGE OF
STANDARD SIZES.



HART & COOLEY MANUFACTURING CO.

500 EAST EIGHTH ST. • HOLLAND, MICHIGAN

IN CANADA: HART & COOLEY MANUFACTURING CO., FORT ERIE, ONTARIO

See these fine new registers at your H&C
Jobber or write for complete details.

She has features you appreciate...

You'll also appreciate these

NEW GAS FURNACES THAT COME ASSEMBLED AND WIRED



- Completely enclosed in heavy steel jacket no larger than majority of open style cabinets.
- Popular M.H. controls assembled and tested at factory.
- In a full range of capacities... 80,000; 100,000; 120,000; 140,000; 160,000; 180,000 and 200,000 BTU input for basement and utility room... 80,000; 100,000; 120,000; 140,000 and 160,000 for counterflow applications.

Here's a furnace as thoroughly set up for operation as many appliances.

It's clean and streamlined with the beauty and protection of baked hammerloid enamel both inside and out. Matching summer cooling systems are available.

Filter racks are standard equipment on all basement and counterflow models.

To clean or service, you merely remove the front panels.

You'll find these features are but a few of the 30 Century advantages which reduce installation and service time... assure better performance... and please your customers.

The edge welded heat exchanger is 100% stress relieved and pressure tested. The heavy cast iron burner is one-piece with slotted ports. Optional direct or belt-driven blowers are big enough to assure smooth operation under cooling loads. For all the facts on this exciting gas furnace, write today to:

You can count on

Century
HEATING - COOLING

for comfort

**CENTURY
ENGINEERING CORPORATION**
Cedar Rapids, Iowa